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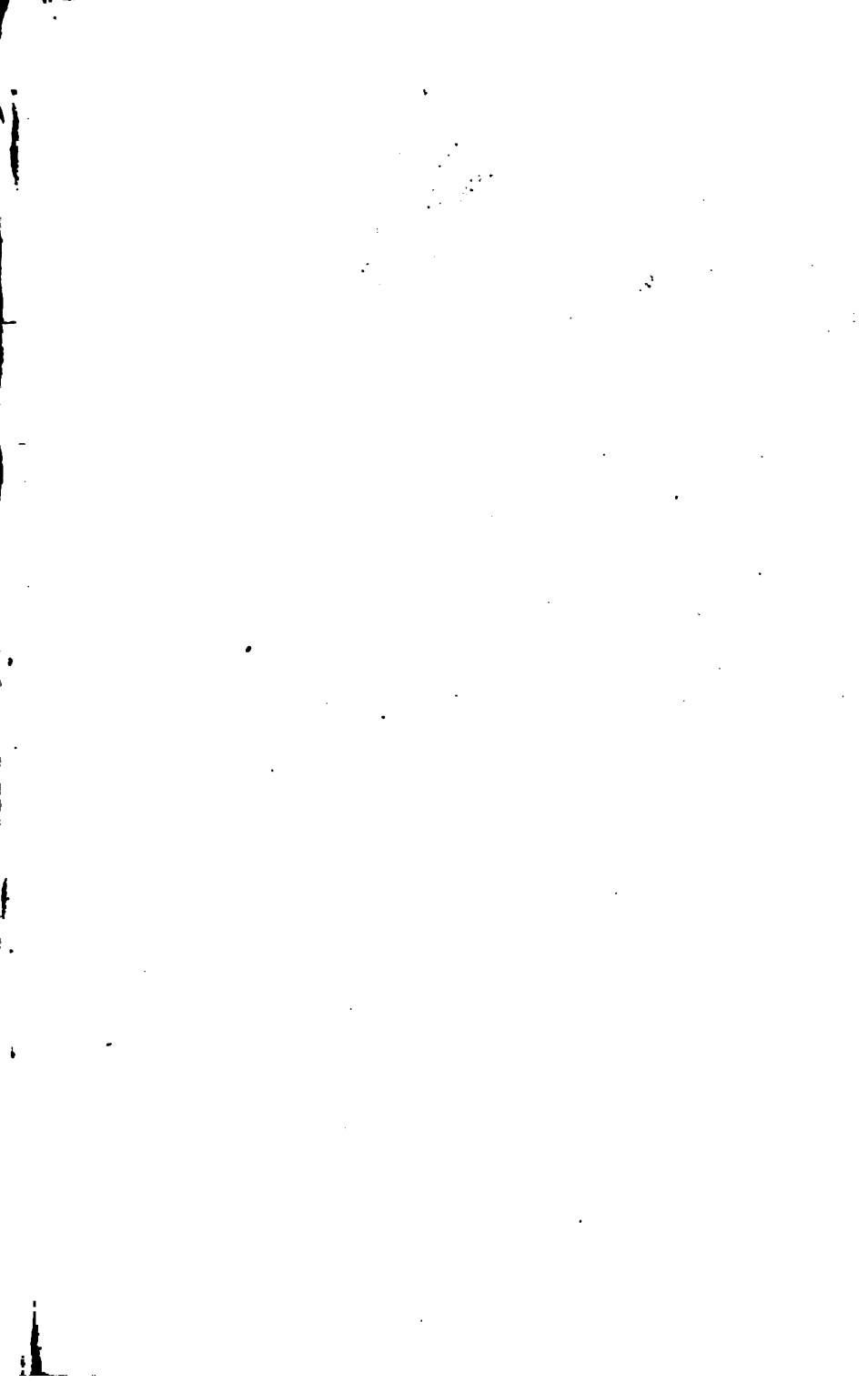
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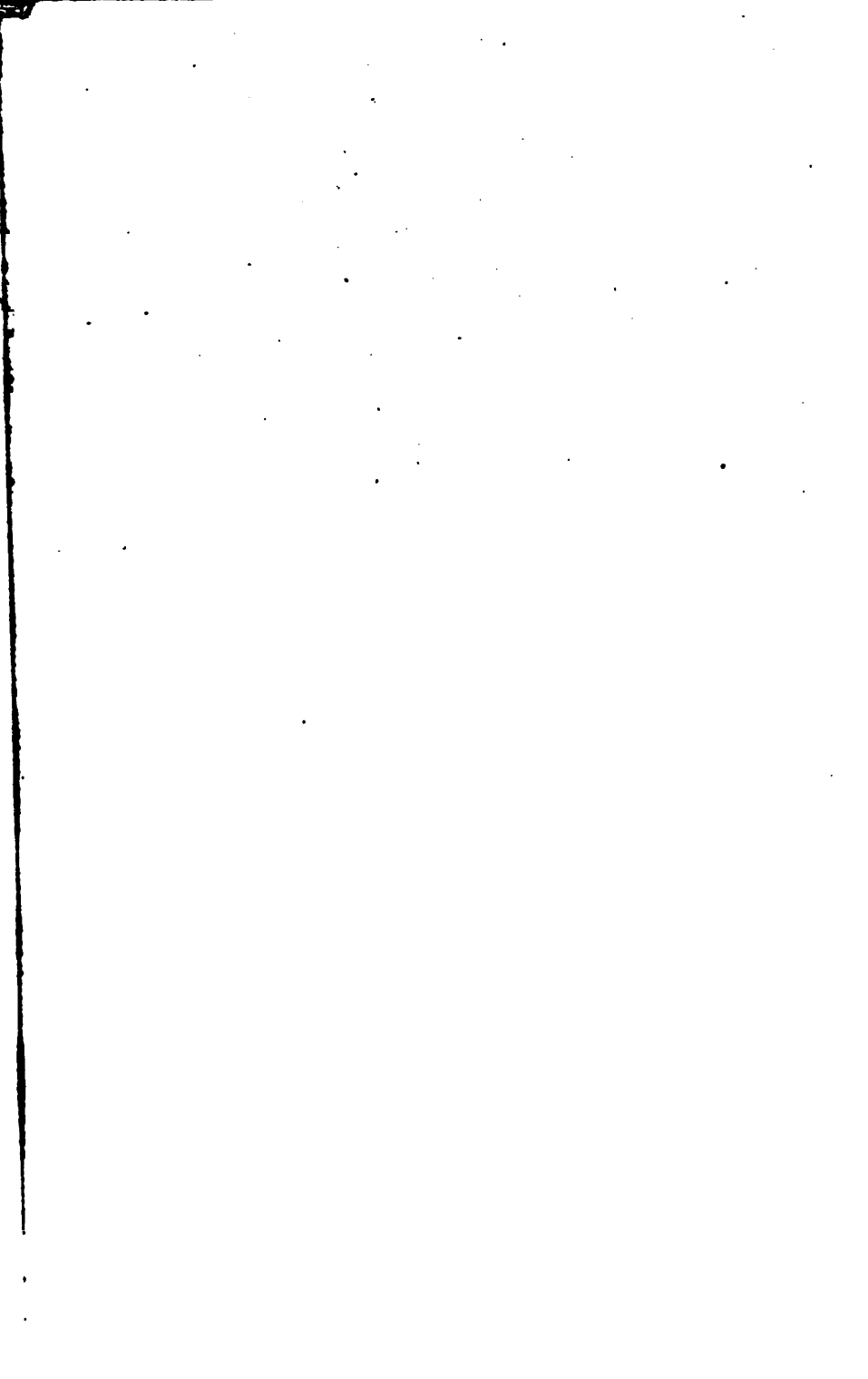
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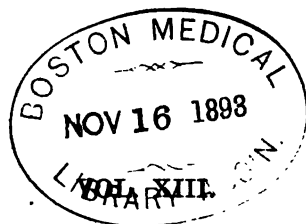
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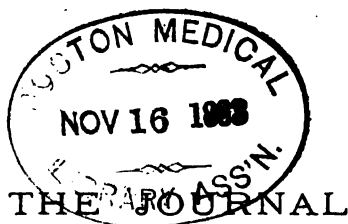
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SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.



OF THE

BRITISH DENTAL ASSOCIATION

A

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ANOTHER twelvemonth has lapsed, and at the opening of a new year we follow the custom established with this Journal, and present our readers with a brief review of the past period. In such a review it is necessary to count losses as well as gains, to acknowledge failures as well as chronicle achievements, and we begin with those personal bereavements which are at once most sad and irreparable.

A mere enumeration of the names of those, either members of our profession, or intimately associated with it, whose loss within the year we have had to deplore, will almost suffice, since not only has an adequate notice in each case appeared in our obituary columns, but all are well known to our readers, and some of the names being familiar in our mouths as household words, their mention will be enough to recall the incidents of careers which form an integral portion of the contemporary history of our pro-

fession. During 1891 death removed from our ranks Mr. S. Cartwright, Dr. C. R. Coffin, Dr. W. H. Atkinson (New York), Mr. J. Sugden Crapper, Mr. A. Cronin, Mr. Keeling, senior, and Mr. Cooke Parson.

Mr. Marshall, late President of the General Medical Council, and Mr. Bellamy, senior surgeon to Charing Cross Hospital, also passed away during the year; the former full of years, the latter cut off in the prime of life, and barely beyond the threshold of a career which gave full promise of the greatest distinction and usefulness.

Although we have no striking achievement to boast of in the domain of science during the year, we can congratulate ourselves on the evidently continual and increasing scientific ardour and activity of our members, and can record some good work and much useful criticism and discussion. Papers by Mr. Charters White, Mr. Mummery, and Mr. Hopewell Smith, on the preparation of tissues for histological examination, mark a distinct advance in this subject so important in physiological and pathological investigation. Mr. Sewill and Mr. Pound, following Dr. Miller, succeeded during the year in producing dental caries by artificial means, and they described the method employed and exhibited specimens at the Odontological Society. Dr. Miller's paper read before the International Congress of Hygiene, on the bacteriology of the mouth, and Mr. Howard Mummery's contribution to the Annual Meeting of our Association, on the methods of research in bacteriology, must prove of the utmost service to those pursuing this important, fascinating study. In this connection no student of any branch of bacteriology can afford to pass over the masterly Croonian lectures delivered by Professor Burdon Sanderson before the College of Physicians in November last, on "The Progress of Discovery relating to the Origin and Nature of Infectious Diseases." The lectures were very

largely taken up by questions in bacteriology, although this is not implied by their title. The scientific discussions at the Association branches and at the Societies have included every topic of importance, and cannot have failed to excite interest whilst widely diffusing much important knowledge. Practical demonstrations, description and trial of new methods of practice, and examination of recently-invented or improved instruments and appliances, have occupied a full share of time. In this work our branches have, as in previous years, taken an active part, and they thus continue to form a medium for widely distributing information such as, before the establishment of our Association, was not even dreamt of. It cannot be doubted that this extensive partnership in the cultivation of professional knowledge will lead to steady progress in the science and art of dentistry. Criticism will establish what is sound whilst overthrowing mistaken ideas, and it is hard to say which of the two services is the more valuable in furthering true advance.

The Annual Meeting is an occasion on which all the objects of the Association, scientific, social and political, are brought to the front, and on which the combined strength of the Association is, so to say, brought to bear on their advancement. The meeting was held under the presidency of Mr. J. Smith Turner. The events of this meeting scarcely requires notice here, seeing that the volume of the transactions containing the whole report of the proceedings is now in the hands of members.

The statistics of the Association for the past year must be considered satisfactory, since no falling off in any direction is visible. The number of members increases; and the financial position, which depends mainly on the number of punctually-paying members, improves.

The year has been a satisfactory one for the Journal. It

would ill become the conductors of the Journal to boast of the editorial department; they at most can only say they have striven to do their duty and to promote to the utmost of their power the interests of the Association. The success of the Journal, its value to the Association and to the profession at large, depends mostly upon contributors to its columns; and the papers published during the year have been of more than average interest and importance. The correspondence columns have been well taken up with discussion of subjects of varied interest. This is a department of the Journal which might be usefully extended. It affords the modest writer an opportunity of expressing his ideas either on scientific or political questions under cover of anonymity or pseudonymity, and this is an opportunity which we should be glad to see more often seized on due occasion.

Surveying the year as a whole we think we may look back with tolerable satisfaction. There has been quiet progress throughout, and not the least sign of retrogression in any direction. Can more be expected of any mundane institution? We think not; neither do we consider, so long as an annual record not more inferior is forthcoming, that we need take any view of our future not full of hope, of encouragement, and promise.

The Responsibilities of Anæsthetists.

IN both the *Lancet* and *Medical Press* during the month of October last a highly interesting correspondence has been appearing on the above subject, and the discussion has brought forward several matters of importance to the dental practitioner. There has been, in the first place, a striking consensus of opinion with regard to the practical safety of nitrous oxide gas when properly administered,

although this agent is, of course, only suitable in dental operations and selected brief surgical procedures in which muscular flaccidity is not called for. With regard to ether and chloroform, the testimony points unequivocally to the conclusion that although ether may be relatively the cause of fewer deaths, with neither of these agents is there perfect safety in the hands of ordinary practitioners, or even in those of the majority of experts. In another column of the present number we notice the report of the Hyderabad Commission, and from this it will be seen that Dr. Lawrie has had an extraordinary record of successful cases with chloroform, and, moreover, has attempted in a most masterly manner to account for his success on scientific grounds. In conjunction with Dr. Lauder Brunton and a staff of scientific experts, he carried out on a vast scale a series of elaborate experiments checked by instruments of precision, and as a result he has most emphatically expressed the opinion that death from chloroform invariably occurs primarily by interference with the respiratory centres; and he insists, above all, on the necessity of watching the breathing rather than the pulse. There can be no doubt that although the majority of anæsthetists may have continued to carefully note the pulse, they have, since the publication of the Hyderabad report, attended as closely as possible to the respiration, and if in spite of this the same average proportion of deaths has occurred it can only be concluded that for practical purposes administration of chloroform must be held to be attended by an appreciable risk to life. When it is added that there is no possibility of determining by examination of a patient's physical condition, be it never so minute and exact, whether untoward symptoms or a fatal result may be expected, the heavy responsibility which attaches to those who use such a dangerous agent for a

comparatively trivial operation like tooth extraction needs no emphasising. The question whether such a risk is justifiable, even with consent of a patient previously informed of the danger incurred, must be answered by each practitioner for himself; but it seems to us that the cases must be extremely rare in which it can be allowable to stake so much for the mere purpose of preventing transient pain, severe though this may be. The number of deaths from chloroform during tooth drawing will probably be found as many per thousand as during other operations. It has further been pointed out once more by some of the recent writers that the notion that partial narcosis means relative safety may be highly fallacious. It seems probable that in a condition of incomplete anæsthesia some patients are liable to fatal shock—shock explicable on physiological grounds, and of a kind not likely to occur in the same individual undergoing a painful operation whilst either deeply unconscious or without the presence of a dose of chloroform in the system inadequate for complete narcosis, but still acting powerfully upon great nerve ganglia and partially inhibiting important centres.

ASSOCIATION INTELLIGENCE.

Central Counties Branch.

A GENERAL meeting of the Central Counties Branch was held at the Dental Hospital, 71, Newhall Street, Birmingham, on Thursday, Dec. 3rd, 1891.

Members first had a substantial tea which had been provided, and at 6.30 the Council Meeting was held, at which Mr. Percy Naden was unanimously elected a member of the Association and of this Branch.

The General Meeting, presided over by Mr. Charles Sims, commenced at 7, at which there were present :—Messrs. J. W. Turner, Geo. Huggins, A. E. Donagan, T. W. Hands, H. Hudson, J. E. Parrott, Percy T. Naden, Egerton C. Sims, G. E. Apperson, Malcolm Knott,

Birmingham ; C. Clifford Batten, Kidderminster ; W. P. Pearson, John Humphreys, F. W. Richards, Charles Sims, J. Mountford, Birmingham ; R. Owen, Wolverhampton ; W. E. Harding, Shrewsbury ; W. H. Waite, Liverpool ; A. Alex. Matthews, Bradford ; W. Reginald Roberts, Lichfield ; W. F. Brooks, Banbury ; Cyril D. Marson, Stafford ; H. W. Grove, Walsall ; W. Palethorpe, Birmingham, and others.

After the minutes had been signed, letters of apology from Messrs. F. E. Huxley, Roff King, F. R. Howard, R. Rogers, A. Vickery, R. J. Surman, A. G. Levason, J. Hinds, J. N. Manton, Newton Petit, Dr. Orrock and Adams Parker, were read.

Mr. W. PALETHORPE then said : Mr. Chairman and Gentlemen,—I beg to ask your kind attention for a few moments. You must all have become aware by now that our President has sustained an irreparable loss by the death of his wife. It is not necessary for me to say much ; he is so well known to you all, his unceasing labours, which have resulted in so much benefit to the profession, and therefore to us all as individual members, demand our highest respect. Those of us who attended the annual meeting received a most genial welcome at his hands as President of the Association, and shared with him the pleasure he felt at the grand success of that meeting. Gentlemen, I am sure that now trouble has overtaken him, we shall all be ready to offer him our deepest sympathy. I beg to move that this meeting desires to offer to Mr. Smith Turner their deepest sympathy in the heavy trial that has befallen him.

This was seconded by Mr. W. E. HARDING, and carried unanimously.

The CHAIRMAN then called on Mr. Grove for his paper.

[Mr. Grove's paper having already appeared in a recent number of a dental contemporary, the Publishing Committee are unable to reproduce it as original matter in the Journal of the Association. It may be as well to draw the attention of members to Bye-law 28, which states that "all communications to the Association shall be the property of the Association," and that members are therefore not at liberty to dispose of them without special permission from the Representative Board.]

The discussion was opened by Mr. PALETHORPE, who said : Our thanks are due to Mr. Grove for his paper, which shows he must have gone to a large amount of trouble in preparing it. His plan of campaign is original, and also is a strong evidence of the earnestness with which he regards this subject. I understand that he regards the Act as being a strong one—stronger, in fact, than many of its kind, and I think the executive of the British Dental Association deserve ungrudging praise for the fact that they have won every case they have tried for, showing the care taken and the thought shown in the selection of the cases. The prosecutions have established precedents, but Mr. Grove would like to go further, and see if the Act cannot meet those

cases where unregistered men do not use the title of dentists, but imply by their advertisements that they are such. I think (I do not say I am sure) we may take it for granted that the executive have had cases of this class before them, and from the very fact of their not having instituted a prosecution, does it not imply that these cases are a bit too risky to touch, and we must remember that they have had the aid of legal opinion? Unregistered men are an evil, and the possibility of swarms of them coming into existence in the future, as they see the success of their predecessors, is a greater one; but whether new prosecutions under our Act are the best methods of preventing them I leave to wiser heads than mine to decide. But I must point out that all public utterances showing the weakness of our Act, and therefore showing quacks how they may avoid it, are unwise. It is possible that even papers like Mr. Grove's may help the evil he is so anxious to stop. I believe it is a fact that the publicity of Clause 37 has caused a large number of men to register under it who would not have done so, while the clause would have been put an end to quite as quickly without it.

Mr. H. R. F. BROOKES (Banbury) remarked that the paper had reference to a matter which was of growing importance in the profession. There were two departments, or phases, of the evil which Mr. Grove had not touched upon very much. One was the question of "covering." He knew of one firm of dentists, supposed to consist of three persons, only one of whom was registered. The other two, for all he knew to the contrary, might be non-existent; but he knew, as a positive fact, that the firm had branches in twenty places, and in most of them, he believed the assistants who conducted them were unqualified. Another evil was that of unregistered qualifications. In the town in which he lived there was a man who called himself D.D.S., which certainly was not D.D.S. Harvard or Michigan. If a vigilance committee were started, that was a point which they might with advantage take up.

Mr. GEO. HUGGINS said that, not being a dentist, he did not know whether he was quite in order in speaking. He might plead as an excuse that he had a brother who was a dentist. Considering the number of years that dentists had been professional men—from 1878 to the present time—the progress had been very little. A great deal had been said about the Dentists Act and its supposed protections. In his profession they had not one Act merely, but a perfect sheaf of Acts, and before they were perfectly protected the dentists would need a sheaf of Acts. It had taken the members of his profession between sixty and seventy years to reach their present stage, and it would take dentists the same period. Something had been said about forming a local vigilance association. That was exactly counter to the practice of his profession. They had local societies, but all the work was done in London. The central society initiated prosecutions, and anything which might be done locally was simply by way of laying information.

It seemed to him that before dentists could hope to stamp out pirates they must have legislation to enable them to do it.

Mr. WAITE observed that the medical profession had found it necessary to start a Defence Union, its headquarters being in Birmingham. The organization was entirely independent of the British Medical Association. From the report for the year 1890 he found that three years ago the number of members was only 400; at present the number was 1,400. Three years ago the reserve fund was £500; it was now £2,000; and the annual income derived from subscriptions and donations was over £700. The subscription was £1 *is.* per annum. He mentioned that because the Dental Association had been formed and had acted hitherto very much upon the lines of the British Medical Association. Anything which was considered correct in the medical profession was inferentially believed to be right in the dental profession. His opinion was that a vigilance committee, if it be desirable to form one, should be independent of the British Dental Association—not in any sense out of harmony with the Association, but that it should have its own machinery and officers. Such a committee would be frowned upon, ridiculed, and misunderstood, and its motives would be impugned. That was the history of every movement tending towards reform. What was needed was a practical scheme, something which was practicable and comprehensive enough to cover every part of the kingdom. The second requisite would be a considerable fund, because he thought the amount of work which had been indicated by the paper was such that should be undertaken by a paid official, and should not be dependent on the more or less spasmodic efforts of an honorary officer. Such paid official should be a qualified solicitor, because if they did not employ one as their secretary they would have to employ one as their agent whenever they went into a court of law. At least the sum (£500) referred to in the paper would be required as an annual income, in addition to a considerable reserve fund, if they were to undertake anything like a wholesale sweep of the multiplied evasions of the Act. But the most important point of all was that which was indicated by the phrase “A band of enthusiastic workers.” If such a body of men could be found there would be no difficulty in establishing a committee or in maintaining or indicating the provisions of the Act.

Mr. W. E. HARDING complained that unregistered men were gradually making their way into the more unfrequented parts of the country. He supported the suggested vigilance committee, but believed that unless it were composed of capable and earnest men it would do more harm than good. The efforts of such a body should be directed more towards suppressing unregistered men who were just commencing practice than towards those who, having been in business a number of years, might be deemed by the courts to have a vested interest. Mr. Grove had very generously offered to start the movement

with a liberal sum, but in the opinion of the speaker it would be wiser to rely upon a large number of small subscriptions rather than upon a few big ones. But whatever was done, it should be a well-considered scheme. Nothing should be done rashly, or that would in any way give an impression that they were running counter to the Representative Board. Instead of being antagonistic to that body, they should run side by side with it, and do everything they could to assist them.

Mr. ROBERTS considered that the time had not yet arrived when such a committee should be formed. Their Act, as he read it, was a very good one, although it might not be so when regarded in a legal aspect. The profession was a young one, and during the last decade the members had attained social and professional status, and he had no doubt that during the next decade they would reach an even higher level. Mr. Grove had spoken of making a clean sweep of the unregistered men, but that was not quite desirable at present. There were a few who were registered who needed dealing with first. Some time ago he was at Llandudno, and on taking up the programme of a concert, the first name he saw was that of an L.D.S.Eng., who resided in Birmingham or very near it; so he was afraid that some of the registered practitioners did not set a very good example to the unregistered.

Mr. OWEN protested against the action of the Council in placing names on the Register without making proper enquiry into each case. During the last six months a man had been admitted who, at the time the Act was passed, was only nine years old. How, under such circumstances as those, could the profession be raised? He could not see the necessity for unregistered men to avoid the Act when the Council would admit them for five guineas.

Mr. MATTHEWS stated that some little time ago he prepared some statistics, which showed that in eight towns in his neighbourhood there were thirty unregistered practitioners. Something ought certainly to be done to put a stop to such a state of things. He favoured the idea of a vigilance committee, believing that, if properly worked, it might be the means of doing a deal of good.

Mr. NEALE pointed out that the great difficulty in dealing with unregistered practitioners was to get hold of the person to whom the business really belonged. They could not prosecute a name; it was the individual against whom proceedings would have to be taken, and the difficulty would be to get hold of that individual.

Mr. RICHARDS said that the plan suggested in the paper went a long way, it went farther, perhaps, than many of them cared to go. Still, good and useful work might be done in this district. Every case which was taken up should be a dead certainty to win. Every case lost must do harm, and ground would be lost. Instead of going with the rising tide they would be carried back by the receding one. Hence cases should be carefully selected, and none should be taken up indiscriminately. Anything, too, which was done in the direction of suing for damages, should be done with very great care and thought.

Mr. KNOTT remarked, that in preparing a paper on the same subject, he had written to several of the most eminent men in the profession, and they all seemed to think that something ought to be done, but that quackery would never be eradicated. In reference to prosecutions, he had the very high legal opinion of Mr. Poland, who stated in very distinct and complete terms that they had no case against men who were advertising by means of a show case and their names, or who advertised themselves as dentists, unless it could be proved that they had, to witnesses, called themselves dentists.

The CHAIRMAN (Mr. Chas. Sims) declared that the British Dental Association was only too ready to take up cases. If Mr. Owen could substantiate the case of which he has spoken there would be no difficulty at all in dealing with it. That case was only an instance of a score, but unfortunately the Association were seldom able to get evidence to go upon. One good case was worth forty other cases. A vigilance committee might very well be formed, but he would certainly suggest that it be under the auspices of the British Dental Association. They were not yet strong enough to run side by side, but he felt sure the Association would do everything possible to help any committee which might be started in sifting cases and bringing to a successful issue any prosecutions which might be undertaken. He should be pleased if, as the result of the discussion that evening, any gentleman who felt that a resolution should be passed would move one. If anyone liked to move that a sub-committee be appointed to consider the subject and bring some practical scheme before a future meeting, he should be glad to submit it, for he thought it would more than any other way help Mr. Grove. He thought they all pretty thoroughly understood the meaning of the essayist and what he would wish carried out.

Mr. GROVE, in replying on the discussion, said the present Act clearly prevented the use of all titles, descriptions and designations by unqualified men. Mr. Huggins' strong point was that they could not prevent a man making artificial teeth, limbs or eyes. Both those very points had been dealt with in the paper. What he wanted to do was to protect the rank and file of the profession, and that was work which could only be done by those who had somewhat of assured positions taking the matter in hand. Of course, he had intended that the opening subscriptions should be supplemented. That would be only the nucleus. He wanted to make clear to the meeting that by the Act of 1878 they, and they alone, were entitled to the use of titles, descriptions, and designations. The Act distinctly stated so. He thanked the meeting very much for the kind way in which they had listened to his remarks, and the friends who had spoken so highly of the plan of campaign.

Mr. TURNER proposed that a committee be formed to consider the advisability of constituting a Dental Defence Union.

Mr. BATTEN seconded the proposition.

Mr. NEALE said he very much objected to proposing an amendment, but he should move that the matter be not dealt with that evening, but that it be deferred to another meeting. They had heard a good deal that evening, and he thought they should have time to reflect upon it before a move was made in the matter. He did not want that branch to be committed to anything which it was not strong enough to carry out. He would move, as an amendment, that the subject of Mr. Grove's paper be referred to the Council.

Mr. HARDING seconded the amendment, and added a suggestion that the Council should, if possible, report to the next meeting.

The CHAIRMAN observed that the suggestion was an excellent one, and the matter might be considered at a special meeting of the Council.

Mr. TURNER withdrew his proposition.

Mr. MOUNTFORD moved an amendment to the effect that the meeting stand adjourned until the last Thursday in January. He contended that the whole of the members, and not the Council merely, should discuss the matter and formulate a resolution thereon, if considered desirable.

Mr. PALETHORPE pointed out that, after the Council had met and considered the matter, the general meeting would deal with it.

Mr. MOUNTFORD expressed himself satisfied with that explanation, and accordingly withdrew his amendment.

The CHAIRMAN submitted Mr. Neale's motion, which had been re-drafted, as under:—"That the subject of Mr. Grove's paper be considered by the Council of this branch at a special meeting convened for the purpose, and that the matter be brought before the members of the branch at the next meeting in February."

The motion having been carried *nem. dis.* the meeting ended.

Irish Branch.

THE Irish Branch met in the Royal College of Surgeons on Tuesday, the 15th of December. For the convenience of members coming from a distance it was arranged to hold the Annual General Meeting for election of officers, and the third ordinary branch meeting of the year, on the same date.

At the request of a number of his colleagues, including the Vice-President, who intimated his readiness to serve a second year in that capacity, the outgoing President had permitted himself to be nominated for a second year of the office.

The scrutiny of the ballot papers gave the following result:—President, W. Booth-Pearsall (second term); Vice-President, R. Theodore Stack; Hon. Treasurer, A. F. Thomson; Council: J. J. Andrew,

A. W. W. Baker, J. C. Clarke, Daniel Corbett, Daniel Corbett, junr., W. C. Corbett, W. H. Elwood, John McStay, R. H. Moore, P. O'Meehan, Frederick Ryding, Charles Wall, Herbert Williams, and G. M. P. Murray, Hon. Sec.

The Treasurer's report showed the Irish Branch to be in a sound financial position.

At 8 p.m. the members again met in the College, W. B. Pearsall, President, in the chair. There were also present R. T. Stack, Joseph S. Thompson, Herbert Williams, A. F. Thompson, S. G. Reeves, Wm. D. Quinn, R. H. Moore, Professor Cunningham, T.C.D., W. R. Graves, Shenstone Bishop, D. Corbett, junr., G. M. P. Murray, &c., &c. The evening was occupied by a most interesting limelight exhibition by the President, and subsequent discussion. The slides were from photographs taken by Mr. Pearsall (by kind permission of the President and Council of the Royal College of Surgeons of Edinburgh) from the valuable collection made by the late Professor Nasmyth, and included some rare and highly interesting specimens of skulls, jaws, and teeth, showing many deformities and abnormalities, both congenital and acquired, all of deep interest to dentists. Many of the most interesting points were ably discussed by Professor Cunningham, Messrs. R. T. Stack, D. Corbett, junr., A. F. Thompson, Graves, &c.

At their next meeting the members hope to have an opportunity of seeing some more of these instructive and beautiful photographs.

G. M. P. MURRAY,

Hon. Sec. Irish Branch, British Dental Association.

Metropolitan Branch.

THE Annual General Meeting of the above Branch will be held on Thursday, February 11th, at 40, Leicester Square, at 8 p.m., when the election of officers and members of Council for the ensuing year will take place.

ORIGINAL COMMUNICATIONS.

The Ethics of Newspaper Proprietorship.

BY A PAST PRESIDENT OF THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

WHATEVER may be alleged regarding the political conduct of the *Times*—a subject the discussion of which falls far beyond the province of this Journal—there can be no doubt that, viewed as a commercial enterprise, that great paper exhibits a bright example

to the whole newspaper press. And parenthetically, but as a requisite prelude to these remarks, be it noted that it is necessary always to discriminate between the didactic or editorial, and the commercial side of newspaper enterprise, and desirable never to forget that an honest high-minded editor may be employed to conduct a paper the proprietor of which has no other object than to make money, and very few scruples as to the mode in which the money is to be made. The example set by the *Times* to which I refer is in the management of its advertising columns. Readers of the Journal need not to be told that there exists at the present day a whole army of rogues—a mass of human parasites attached to the body politic—of which quack doctors and quack dentists, “electrical” quacks, and fraudulent nostrum-mongers of all kinds form only one contingent, whilst others are made up of such classes of gentry as bogus company promoters, usurers, outside stockbrokers and the numerous inventors of a constant succession of artful schemes for the extraction of money from the pockets of that large section of the community composed of the simple, the confiding, and the unwary. In furthering their nefarious purposes these men all mainly rely upon newspaper advertisements. It might be possible for a high-minded editor, absorbed in his task as preacher of political and social morality, to plead ignorance of the existence of this horde of evil doers; but such a plea could hardly be put seriously forward on behalf of a shrewd business man like an enterprising newspaper proprietor; nor could such a one deny the fact that the power of deceiving, maltreating and robbing the public would be much curtailed were respectable newspapers to refuse admission to every advertisement that excited reasonable suspicion of *mala fides*. It is in the exclusion of objectionable advertisements, in its known readiness to exclude all such as can be shown to be worse than questionable, and the rigorous guardianship of its columns against anything remotely resembling a puff, that the *Times* displays a superiority to many of its contemporaries. It was the first to refuse altogether the advertisements of obscene venereal quacks, and at a time, too, when these men, making large incomes, were ready and willing to pay almost any price for the privilege. This was self-sacrifice for the public welfare—a great contrast to the behaviour of certain newspaper owners who, although otherwise reaping from their enterprise wealth beyond the dreams of avarice, were about the same period publicly convicted

of accepting vile advertisements in consideration of payment on a special and exorbitant scale.

If there be any newspaper conductors who are to be counted particularly responsible in these matters, and under special obligation to guard their advertising sheets from any use likely, however remotely, to lead their readers into a trap, it is such as carry on so-called "personal" or "society" journals. These papers, some of which are much read, and are doubtless accepted more or less as guides by that large section of the public which is unintellectual or unintelligent, take upon themselves the function of social censors, and from week to week occupy much of their space in exposure of abuses, and in denunciation of individual malefactors. It is impossible that editors and proprietors of papers who display the keenest scent in hunting out and attacking the hidden promoters of the most cunningly-concocted schemes, can be ignorant of the real character of many of the advertisements to which they freely give a place. A recent number of perhaps the most read and most influential of this class of publication is before me at this moment. Considerable editorial space is devoted to denunciation of an advertising money-lender whose circular, offering to lend money "without sureties," &c., is severely and properly commented upon. Is it to be believed that in the advertising columns of the very same issue are a considerable number of money lenders' advertisements of the exact type denounced in the editorial department, each offering to dispense with "sureties," and containing the common cant terms which seem enough to attract the foolish, and which are always more than enough to indicate their true character to any man of the world. It might be difficult to decide whether the victim of a West End usurer or of a quack dentist were the more likely to suffer the greater hurt; but it is quite evident that the astute editor and proprietor of the paper alluded to is well aware that the lengthy lying advertisements of quack dentists promising to perform the usual miracles, to carry out "all operations without pain," and to "save all teeth however badly decayed," are not inserted at great cost without the certainty that victims will be attracted; nor can there be any doubt the editor is fully alive to the character of the men and their system to which he so far lends himself for a price as an agent. The conclusion which must be arrived at after examination of their character for honesty and consistency—and I have only

submitted a minute fragment of the indictment which might be preferred against them—is that the class of paper in question forms a shameful blot on the fair fame of journalism—a blot which every well-wisher of the press ought to do his utmost to obliterate.

Teeth Growing from Persistent Pulp.

By J. SIM WALLACE, M.B., C.M., B.Sc.

ALTHOUGH the study of teeth of persistent growth is not directly of practical importance to us as dentists, yet it may to a certain extent influence our modes of setting artificial teeth when we consider certain mechanical principles which it involves. Teeth of persistent growth are put to several different uses, their mode and depth of implantation often indicating what these uses are. Thus when the tooth is straight with a relatively short implantation we should expect it to be used for such a purpose as piercing in the direction of the axis of the tooth, and not put to uses involving any lateral strain. This is exemplified in the tusk of the male narwhal. When the tooth is curved with a relatively long implantation we observe that it is put to uses involving strain lateral to the long axis of the tooth. The curvature may either be to save an excessive development of bone for the necessarily deeply implanted part, or for special power of resistance to strain in one particular direction. As an example of this latter may be taken teeth not used in mastication, and projecting from the mouth in which the uses to which they are put are such that the strain falls on the end of the tooth in a direction continuous with the segment of the circle which the tooth describes, *e.g.*, the canines of the walrus and musk deer.

The curvature of rodents' incisors is for the purpose of allowing deep implantation without any special development of bone. I know that it is generally said that the curvature of rodents' incisors is to prevent undue pressure on the actively growing pulp, but this I firmly believe is not the reason at all. In the first place, many teeth of persistent growth really liable to great pressure, and more or less sudden jerks—which we might expect could do harm to the growing pulps—are not curved. This is well exemplified in the incisor teeth of the hippopotamus. Secondly, the growing pulps of all teeth, whether of persistent growth or otherwise, have

specially great vitality. No bad effects seem to arise from the sudden jars which the molars in the human mouth are liable to while the pulp is still actively growing and the tooth is only slightly supported by the alveolo-dental periosteum. Lastly, considering the direction of the free ends of the teeth, the arrangement of the muscles and the mode of mastication, it would be quite impossible for the rodent to make great pressure on its incisor teeth, and so on the growing pulp.

The true reason why the incisors of rodents are so deeply implanted is because if they were not the tooth would be liable to antero-posterior displacement, and the teeth, in the ordinary uses to which they are put, would act somewhat like a pair of scissors with a loose joint. Now, assuming the necessity of the deep implantation of such teeth, were there no curvature, there would require to be extraordinarily clumsy projections of bone for their implantation, giving an appearance almost as grotesque as the theory, that the curvature is simply for the purpose of preventing undue pressure on the growing pulp. Another advantage which might be claimed for the curved form of rodent's incisors is that the lingual side of the tooth describing an arc of a smaller circle than the labial, less substance requires to be ground off of it to keep the sharp cutting chisel-shaped anterior edge.

This subject deserves our special attention, bearing as it does so directly on the setting of teeth for strength in mastication and economy in space.

Absorption.

BY HENRY BLANDY, L.D.S.Edin.

THE roots of the temporary teeth disappear by reason of the advance of the permanent teeth, though Sir John Tomes, in his Dental Surgery points out that absorption is sometimes set up independently of this pressure. As a rule we find when we are called upon to extract children's teeth that the permanent tooth has scooped out room for itself in the temporary roots. Sometimes we find a live pulp *in situ* and yet no pain, no severe racking neuralgic pain has been complained of. The child has bitten on the tooth until it has become loosened, the nerve has become trapped between the temporary and the advancing tooth. Yet there has been no severe spasm of pain or convulsion as in teething,

when the unprotected pulp or papilla is trapped by chewing the indiarubber ring, or the dense gum resisting eruption, and to which the lance gives immediate relief. It is not because the nervous or blood supply is cut off, for the pulp remains healthy to the last and some root may be intact. Why is there this absence of pain?

When absorption takes place in a permanent tooth from a mis-directed encroaching wisdom we get neuralgia of the severest character. I suppose most dentists will have had cases where the cementum and dentine having been eaten away, the nerves in the pulp become most intolerant, and are most energetic in their remonstrance. I showed a specimen at Dublin where an upper wisdom had eaten away the palatal root of the second molar, and there was no visible cause for the intense neuralgia the patient suffered. Had this been an encroachment on a temporary tooth, experience shows that there would have been no such resentment. I also showed a specimen where a cavity of absorption, clean and clear, was above a carious cavity, and which had given rise to such serious neuralgia that the eye became involved, and the patient had her eye removed in consequence. There appears to be some much more powerful irritant at work in adult absorption than in that of childhood, though it is not so active or nearly so prevalent. As I do not find Tomes, or Salter, or Garettsen touch on this interesting part of the subject, which is one shrouded in a good deal of mystery besides, viz., as to how the detritus is carried away, I venture to ask some of your readers to account for the difference in pain in the two kinds of absorption.

LEGAL INTELLIGENCE.

Claim by a Dentist.

At the Liverpool County Court recently, before his Honour Judge Collier, an action was brought by Mr. Thomas Isaac Lloyd, dentist, Bold Street, Liverpool, against Mr. George W. Woodford, Ruabon, to recover £8 15s. 6d., the balance of an account due for professional services. Mr. Walter Harris appeared for the plaintiff and Mr. Nield for the defendant. It appeared from the case for the plaintiff that for some years past he had supplied sets of artificial teeth to the defendant and his wife, and had also attended to the teeth of his children. His account

ultimately amounted to £50 3s. 6d., and the defendant paid £41 8s., but disputed the balance, and after some negotiations between them he set up a counter-claim on the ground that the upper plate of one set of teeth supplied to the defendant and which he had worn for three years and a half, was fractured, and that three fillings put into the teeth of some of his children had come out. The plaintiff asserted that this was no fault of his, as he had done the work in a proper and professional manner. The fracture of the plate, he said, was the result of the defendant's practice of eating on only the left side of his mouth, and this caused an undue strain on the plate. With regard to the stopping of the daughters' teeth, plaintiff said that both the young ladies were so nervous and restless under the operation that it was almost impossible to do the work with complete satisfaction. In the case of Miss Woodford her teeth were very fragile and friable. On one occasion she came to him accompanied by her intended husband, and he proved rather a disturbing element, as the lady would not keep quiet during the operation of filling. Later on Miss Woodford and her sister both came to him, and the latter complained of a filling having come out of a tooth, but on examination he found that it was a tooth newly effected. He staked his professional reputation on the accuracy of his examination ; but the young ladies persisted, and he therefore declined to continue his services.

The examination of the plaintiff having been concluded,

The learned judge advised that this was a case in which a settlement was very desirable. A dentist could not guarantee that a plate would not fracture or that a stopping would not come out.

After consultation the parties agreed to a settlement, the defendant offering to pay £7 and costs.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

THE annual general meeting of the above Society was held on Monday, January 11th. Mr. THOMAS ARNOLD ROGERS took the chair, in the absence of the President, who was unable to attend through indisposition. There were present a large number of Members and several visitors.

The minutes of the preceding meeting having been read and confirmed, the Librarian and Curator were called upon for their Annual Report for the year then completed.

The Reports were read, agreed to, and duly passed.

The Treasurer then presented a detailed account of the expenditure and receipts for the year, which was considered satisfactory, in that the latter exceeded the former by over £30.

The Report was adopted.

Messrs. Albert and Coxon were appointed scrutineers of the ballot for the Officers to serve in the new year.

The following members were elected as officers and councillors for the year 1892 :—

PRESIDENT.—J. Howard Mummery.

VICE-PRESIDENTS.—(*Resident*) David Hepburn, T. H. G. Harding, R. H. Woodhouse ; (*Non-Resident*) J. H. Redman (Brighton), R. T. Stack (Dublin), F. H. Balkwill (Plymouth).

TREASURER.—Thomas Arnold Rogers.

LIBRARIAN.—Ashley Gibbings.

CURATOR.—Storer Bennett.

EDITOR OF TRANSACTIONS.—Walter Coffin.

HONORARY SECRETARIES.—John Ackery (*Council*), W. A. Maggs (*Society*), F. Henri Weiss (*for Foreign Correspondence*).

COUNCILLORS.—(*Resident*) W. Hern, F. Newland Pedley, C. J. Boyd Wallis, F. J. Bennett, Cornelius Robbins, E. G. Betts, Morton Smale, B. J. Bonnell, E. Lloyd Williams ; (*Non-Resident*) W. B. Bacon (Tunbridge Wells), H. B. Mason (Exeter), Mordaunt A. de C. B. Stevens (Nice), T. S. Carter (Leeds), W. S. Woodburn (Glasgow), W. H. Williamson (Aberdeen), H. C. Quinby (Liverpool), D. W. Amore (St. Leonards), Wilson Hogue (Bournemouth).

The following gentlemen were then elected Members of the Society :—Messrs. C. W. Croft Handley, H. E. Goddard and W. Draper Moon.

Mr. ALBERT was then called upon for his casual communication. He said he proposed bringing before the Society a striking instance of asymmetry of the jaws. The patient, Alice B—, was aged twenty-eight, had noticed two years ago, some stiffness about the left temporo-maxillary joint. Just before this a tooth had been extracted, and artificial teeth put in, after which she noticed her mouth was drawn to one side. The stiffness and deformity had since increased. She had scarlet fever and "low fever" in infancy (the latter possibly infantile paralysis). At all events there was a marked muscular weakness. The tooth extraction probably had nothing to do with her present condition, for a photograph of her, taken five years ago, plainly showed some deformity of the face. Patient well formed, with good features above upper lip, and healthy looking. No other asymmetry, as shown in upper limbs, and she wore the same sized boots. The face

presented a most peculiar appearance, looking as if made in two pieces, and the jaws stuck out at an angle of 45° . The eyes are on different levels, but the difference was slight, and increased by the arching upwards of the left eyebrow. Under the left eye is a hard projection traceable to the ear, probably the bulging zygomatic arch. Below this, and in front of the ear, was a hard, bony projection, in front of which was a depression large enough to admit a finger. These two appeared to be the hypertrophied condyle, with the sigmoid notch correspondingly increased in size. The condyle extended downwards for $1\frac{1}{2}$ inches (it moved with the lower jaw). The facial surface of the lower jaw was protruded, and in passing the finger into the mouth the bulging alveolus became very evident, especially in the bicuspid and molar region. The lower jaw was pushed over to the right side, so that the chin was one inch to the median line. There was a corresponding protrusion of the left lower jaw, and the articulation of that side was less evident than usual. The mouth could not be opened wider than one and-a-half inches, and to open it wide caused pain. The line of the teeth, both artificial and real, was in an angle drawn from two inches above the right angle of jaw to the angle of left lower jaw. There was no facial paralysis, and patient had perfect power over limbs. Had had toothache and swollen face at times in left lower jaw. The teeth that had been lost had been removed for these affections. There was some atrophy of the L.

Measurements of face.

Root of nose to E. angular ...	R=L	From I. canthus to ear ...	L=5
External angular to ear ...	R=L		R=4 $\frac{1}{2}$
Ear to ent. occipital protuberance ...	R=L	From I. canthus to angle of jaw ...	L=5
From ear to angle of jaw ...	L=4		R=5 $\frac{1}{2}$
	R=3	From symphysis to angle of jaw ...	R=L

The mouth was in an unhealthy state, crowded with diseased teeth and roots, most of the few sound teeth being loose and pus being secreted round them. The gums congested and exuding viscid mucus in large quantities. The mouth being difficult to open, it was impossible to obtain satisfactory impressions either with or without an anæsthetic.

The actual diagnosis of the deformity was, to a certain extent only, certain. There was the hypertrophied condyle, but this was not enough to cause the protrusion of the molar bone nor of the facial surface of the upper jaw, nor would it cause the even slight alteration of the level of the eye. Neither could these be accounted for on the supposition that the possible infantile paralysis had in some way retarded in growth in the left side, and hence the compensating hypertrophy on the right. Nor could it be imagined that in the adaptation of the teeth an incorrect bite would throw the jaw over to one side, much less be attended by hypertrophies anywhere. Three conclusions alone were possible, and one of them, general asymmetry, had been

disproved by measurements. The two others were (1) some antral growth or hypertrophic changes in the upper jaw, (2) a sort of unilateral leontiasis ossium involving a secondary and compensating change in the lower jaw. He was inclined to favour the growth theory; for had there been a general hypertrophy, it would be feasible to imagine that the extraction of the teeth would have been very difficult, but the reverse was the case, little force was needed, and the wound healed well.

At the suggestion of the CHAIRMAN, Mr. Heath was asked his opinion of the case. He said that although he had come there to speak upon quite another subject, he was most willing to give his experience of cases such as Mr. Albert had described. They were, he thought, rather surgical than dental, and he had met with several and had described and figured in his lectures upon diseases and injuries of the jaws some cases which were quite similar to the one just described. He had no doubt that the condition arose from hypertrophy of the neck and condyle of the lower jaw, and was best remedied by a surgical operation for the removal of the hypertrophied portion. No mechanical contrivance could be used which would help the patient who, if she suffered inconvenience, should be operated upon.

Mr. STOKER BENNETT desired to ask whether Mr. Albert regarded the condition of the teeth as in any way causative of the condition of the jaw and

Mr. COXON (Wisbech) asked why Mr. Albert had removed the lower incisor teeth which appeared to him to be quite healthy.

Mr. ALBERT, in reply, deprecated any intention to associate the condition of the teeth with the causation of the disease, and stated he had removed the lower incisor teeth simply to allow him to get into the mouth for taking impressions, &c., as the patient could not open it.

Mr. J. F. COLYER read a communication referring to three cases of fracture, which illustrated the use of what is known as a Hayward splint.

The first case occurred in a boy *æt.* about five, was seen at Westminster Hospital. He had fallen from a height of about twenty feet, and sustained a fracture through both canine regions. In addition the lower lip was much cut, and when first seen, four days after the accident, was extremely swollen, adding to the difficulty of the case. When examined under chloroform the fragment carrying the incisor teeth was displaced downwards and backwards, and could be with great difficulty replaced. The teeth were thin and very short. Impressions were taken and a loosely-fitting splint made; this was filled in with Gilbert's gutta-percha, and the splint forced into place (chloroform being administered.) A fair amount of difficulty was met with in getting the fragment into place, but the case progressed without an untoward symptom, the splint being removed in five weeks.

The second occurred in a female *æt.* thirty-five, who during a strike

meeting acquired a fracture in the left canine region. Attempts were made at first to treat this with an outside gutta-percha splint, but this proved inefficient to keep the fragments in position. When first seen by Mr. Colyer the larger fragment was very much displaced downwards, the bicuspid and incisors in the fragment were very short. In the molar region on either side the molar teeth were level with the gum. A splint was fixed in position and removed in five weeks, good union resulting, though the canine had to be removed followed by exfoliation of a small portion of bone at this point. The third case was that of a man who had been treated fruitlessly by an outside splint for fourteen days. Examination proved that the line of fracture ran in front of the right lower wisdom, the alveolus carrying the first and second molar being fractured and forced inwards. The displacement of the fracture carrying the wisdom tooth was well marked, being displaced upwards and inwards towards the median line. A splint was made and fixed, the patient progressing very well during the first three weeks, but during the fourth an abscess formed about the angle of the jaw. The splint was removed at the end of the fourth week, when good union had taken place.

In the first case the thinness, slight looseness of the teeth and displacement of the central fragments, and in the second the shortness of the teeth and great displacement downwards of the larger fragment, contra-indicated a Hammond splint, as the tension on the teeth would have been prejudicial.

The third case, a slight addition to the splint was made. The tendency of the bandage in these splints is to slip forwards and it is at times difficult to keep it in correct position. To overcome this, slight catches were soldered on the splints, one towards the front part of the outside bar, and one towards the extremity, this latter being useful for fixing or spicking on the bandage when pressure is required towards the back part of the jaw. In these splints it is as well, if there is the slightest doubt about getting the fragments back into perfect position, or if the teeth are at all pointed, they make them loosely fitting and fill them with some soft form of gutta-percha. This overcoming the difficulties mentioned and ensuring a perfect fit. Another point was to bend the bars upwards so as to prevent the wire rubbing the angles of the mouth, and it is always as well to moisten this part of the wire with some lubricant.

The splint had its advantages and disadvantages. The principal disadvantages urged against it being the discomfort to the patient when lying on the side, and the liability to cause eczema at the angles of the mouth. For these reasons many would prefer a Gunning splint in the cases recorded. The advantages of a Hayward when it could be used over a Gunning are firstly, that it allowed movement of the jaw, and hence more solid nourishment could be taken than with a Gunning, and again, the pressure from the bandage was more evenly distributed than was the case with the Gunning, a most important point.

The SECRETARY exhibited and described, for Mr. A. C. Farnsworth, a new impression tray for rapid modelling, in which, by an arrangement of double tubes, a stream of water rapidly cooled the model placed on the tray.

Mr. W. H. COFFIN pointed out that this ingenious apparatus was not novel in idea, as his father, Dr. Coffin, had used a similar arrangement many years ago.

Mr. Heath then read his communication :—

Mr. CHRISTOPHER HEATH, who was received with great applause, said he had had great pleasure in promising the President that he would bring a communication before the Society. He extremely regretted the unavoidable absence of the President, through the then-prevailing epidemic, as it deprived him of the satisfaction of seeing a colleague of his own in the chair. In selecting a subject for his communication he had chosen that of epithelioma of the jaws, because it presented many things of common interest to the dental and general surgeon. In these cases the trouble frequently originated in the gums about the teeth, and the patient, considering the matter one of slight, or transient, importance, consulted his dentist. Thus it might happen that, should the patient fall into the hands of an incompetent man, the gravity of the affection might be overlooked. He need hardly say every case of epithelioma was a serious matter, and required to be attended to by the surgeon without temporising or delay. There were, he said, two varieties of epithelioma met with in connection with the jaws—the common or squamous, found upon the lip, face and so on, and especially at points of junction between mucous membrane and skin. Until lately, this was the only form recognised. The other variety was termed columnar epithelioma, and was found in the intestinal tract. This variety had only been clearly recognised of late years, having previously been regarded as scirrhus cancer. These forms of epithelioma were found in situations in which the particular variety of epithelium occurring in their structure, was naturally existent. Thus in situations where squamous epithelium was found squamous epithelioma was liable to be developed, and in the same way the surface naturally covered by columnar epithelium might produce columnar epithelioma. Referring to the upper jaw, it would be seen that columnar epithelioma was developed in its cavity, the antrum. In the lower jaw, although no cavity existed, true columnar epithelioma became developed—a fact which had been shown by the careful researches of Mr. Eve, made, it might be remarked, upon Mr. Heath's specimens in the College of Surgeon's Museum.

Describing the appearance and microscopic character of the growth, squamous epithelioma was said to consist of heaped-up masses of hypertrophied epithelium upon the surface, giving rise to raised edges round the growth and processes of epithelium growing down into the non-epithelial structures subjacent to the epithelial covering. A speci-

men was exhibited showing heaping-up of the edges about a central epitheliomatous ulcer. It had been shown by Mr. Jonathan Hutchinson that epithelioma could be made to develop by the constant presence of irritation applied to an epithelial surface. This was exemplified by the common occurrence on epithelioma of the lower lip, due to the smoking of dirty clay pipes. Another cause which surgeons had brought before them very frequently was the irritation set up by rough and jagged teeth giving rise to epithelioma on the tongue. Occasionally an ill-fitting denture would produce a simple ulcer, which later on, from constant irritation, developed into epithelioma, and this was especially the case when the denture was not removed daily. It should be noticed that epithelioma of the gums causing a painful bleeding mass round the teeth and usually spread down into the alveoli, so that Mr. Heath was quite sure in treating these cases a portion of the jaw should in every case be removed, otherwise recurrence was pretty sure to take place. In the upper jaw the growth commonly attacked the antrum, spreading to the nose and palate, and cases were referred to showing this, and that when the growth started in the palate it spread to the antrum. In one case masses of cancer were found on the hard and soft palates, and blocking up the nose, but not involving the orbit. The patient had applied for relief at another hospital, but the surgeon there had declined to operate. However, Mr. Heath saw no reason to refuse an operation, which was duly performed, the only complication being due to the entry of blood into the larynx, which interfered with breathing. Laryngotomy was performed, and a very large clot removed, and matters then went on all right, a good recovery being made. Mr. Heath contrasted with this a case of columnar epithelioma occurring in a gentleman aged sixty, whose attention was first called to his condition by a discharge from his nose, for which he had been treated. He eventually came to Mr. Heath, who, upon examining him, found epithelioma, and the upper jaw was removed. Upon section the antrum was found to be full of the growth, and this had caused the nasal discharge. It was pointed out that unless a case were treated radically and early there was danger of the growth extending backwards into the bony cavities of the sphenoid, ethmoid, &c. Mr. Heath quoted a further case where a gentleman had a small ulcer upon the site of an old cicatrix in the cheek. The gland below the jaw, and the jaw itself were, in this case, involved and were removed.

Besides the primary epithelioma spoken of above, Mr. Heath pointed out that epithelioma of the jaw might follow the primary growth on the lip. A case of this was described in which the patient, a soldier, aged thirty, had two years ago an epithelioma cut out of his lip. Eighteen months afterwards he complained of trouble about the jaw, which was erroneously diagnosed as carbuncle, and poulticed. When Mr. Heath saw him he at once detected epithelioma, and

removed the whole of the front of the lower jaw, extending from behind the bicuspid on each side. Any attempt to save the lower portion of the jaw in these cases was a mistake, and disease was liable to recur. Mr. Heath mentioned some cases in which this had occurred. Referring to the deformity of the parts following the removal of the centre of the jaw, Mr. Heath said that his experience went to show that all such appliances failed, either because the patient could not wear them, or on account of the extreme strength of the muscles pulling the two segments of the jaw together. There was still a third class of cases, namely, those following primary growth in the tongue. A specimen was shown of epithelioma of the front of the tongue, also involving extensively the tissues about the lower jaw. The case seemed a desperate one, but to relieve the man's pain an operation was decided upon. His recovery was perfect, and he was alive and well sixteen years afterwards. These cases showed how important it was to recognise the condition, and deal with efficiently when discovered.

After some remarks from the Chair and Mr. Storer Bennett, to which Mr. Heath briefly replied, a vote of thanks to Mr. Heath was carried by acclamation.

In the absence of the President, the Secretary read the valedictory address. In saying a few words of farewell on leaving the presidential chair of this society, Mr. Hutchinson felt that his first duty must be to offer hearty personal thanks to the members of the Council and of the society who had so largely contributed to the success of the meetings, and who, by their kind support, had rendered his year of office one of great pleasure, and had lightened the burden of his great responsibility. The Council meetings had been largely attended, and it is only right to acknowledge what an enormous power this gave to a president in the discharge of his duties. He desired to offer to each, individually his thanks. The treasurer, Mr. T. A. Rogers, had been a tower of strength, for his long association with the society, his loyal conservation of its best traditions, and his unfailing good judgment. The success which attended the society's conversazione to the British Dental Association was, in great measure, due to Mr. Ackery's unceasing energy and clever management, which had resulted in so satisfactory a gathering, in spite of the inclemency of the weather. Mr. Maggs and Mr. Henri Weiss had also each spared no pains to fulfil their secretarial duties, and the ample supply of papers and of interesting casual communications formed the strongest evidence of the zeal of Mr. Maggs. This past year had been marked by two important events, one of which was the fact that the curator, Mr. Storer Bennett, had completed the supplementary catalogue of the museum from 1884 up to the present time. Every specimen in the museum was classified and numbered, but many numbered specimens were stored away in drawers and cupboards, awaiting the future re-arrangement or actual moving of the

museum. The other important event was the editing and arranging the "resolutions of Council," so as to be capable of ready reference by the Council in its deliberations. Few could realise what the labours of the sub-committee had been, and the grateful thanks of the society were due to Messrs. Coffin, Gibbings, Bennett, and Stocken, and the two hon. secs., for their unremitting labour. The past year had been notable too for the number of nominations of new members, no less than thirty-one, a very satisfactory and encouraging increase. He felt they might look back with satisfaction on the work that has been done by the Society in the way of papers; for there had been one upon nearly every branch of their art. In February Dr. Arkövy dealt with the latest methods of contour and crown-work. Dr. Silk had read a paper on "Bromide of Ethyl in Dental Surgery," in which he proved very much to the satisfaction of the Society that the strong faith, expressed in his (the President's) Inaugural Address, in the value of nitrous oxide, was fully justified, placing nitrous oxide in the first rank as an anæsthetic for dental purposes. Dr. Job Collins had read a useful paper on associated and related ocular and dental diseases, destroying some pleasant and most cherished illusions! Mr. Pearce Gould had added to their store of knowledge by his valuable paper on a fatal case of impacted tooth-plate. While these papers by surgeons and physicians had borne strongly on their speciality, the remainder of the session had been occupied by papers of a more purely dental nature. Mr. Douglas Caush had given a capital account of exostosis illustrated by some beautiful sections shown by the projection-lantern. Then Mr. Balkwill, of Plymouth, sent a short paper, the result of much research on morphological dental irregularities. Mr. Sewill furnished a paper verifying Dr. Miller's researches in the artificial production of dental caries and this also was illustrated by the lantern. Mr. Hopewell Smith had contributed a very instructive paper, the result of earnest work on a method of preparing sections of teeth and bone to show hard and soft parts in combination. Then in December they had had a very original and interesting communication from Mr. Hooton, of Manchester, on his invention of a method of moulding continuous gum to any case by means of set matrices as easily as vulcanite. And finally at the present meeting had had the welcome presence of Mr. Christopher Heath, so well known for his classical work on "Diseases of the Jaws," and above all for the warm interest he had always taken in dental matters, as testified by his position as Examiner on the Dental Board, and as Consulting Surgeon to the Dental Hospital of London. This he thought formed a good record for the session, further it had also been enlivened by many very valuable contributions to dental surgery in the way of casual communications. Turning to the things left undone, he referred to his address of last February. He had spoken of the possibility of the Society being called the "Royal

Odontological Society," but in the uncertainty as to their future habitation it did not seem opportune to move in the matter at present. He had spoken of the day when every qualified dental surgeon would regard membership of this Society as a higher diploma, but he had never advocated that it should be regarded as a qualification. Referring to the decision of the Lord Chief Justice and other judges on the use of the title, "Doctor" by qualified medical practitioners, he hoped the day was not far distant when the same law should be applied to dental practitioners who styled themselves "Doctor" when they did not possess a registrable medical degree. Their ranks had been thinned during the year, by death and by resignations, and included the loss of a very distinguished honorary member, Professor Wedl. Much attention had been given to trying to find fresh quarters, but in December unofficial information had reached the Council that the Dental Hospital would extend its building, so that for some time at least no need arose for seeking a fresh home. He wished to express his earnest hope that some plan might eventually be found, by which the Odontological Society and the Dental Hospital of London might secure a building which would be amply large enough to hold the Odontological Society, the British Dental Association, and the Metropolitan Branch, with museums and library, under the roof of the Dental Hospital, but at the same time distinct from the hospital portion of the building and accessible to all members and to students of other hospitals. In conclusion, he referred in graceful terms to his successor in the chair, and to the pleasant and harmonious way in which the members of the Society had supported him during his year of office.

The meeting concluded with the announcement of the election of the officers for the new year, the usual votes of thanks to the retiring officers, and some most happily expressed remarks from the Chairman, which were received with the warmest sympathy by the meeting.

Birmingham Dental School.

The following reports were presented at the late Annual Meeting of the Birmingham Dental School :—

ANNUAL REPORT OF THE BIRMINGHAM DENTAL BOARD, 1891.

GENTLEMEN,—I have to report to you the changes which have occurred during the year in connection with the Dental Faculty of Queen's College. Mr. W. T. Madin, L.D.S.Eng., has been appointed Dental Tutor for a period of three years, in the place of Mr. F. H. Goffe, whose term of office had expired, and to whom was accorded a vote of thanks and honorarium in consideration of his services.

The following special courses have been inaugurated : Four lectures on "Syphilis and Surgical Diseases of the Mouth in their relation to Dentistry," by Mr. Frank Marsh, F.R.C.S. ; a short course of lectures on "Diseases of the Throat and Nose, and of Digestion, in their relation to Dentistry," by Dr. T. Stacey Wilson, M.B., M.R.C.P. To be delivered during the winter session.

An entrance scholarship, value £15, has been instituted to be awarded annually. The Council have determined to award medals in the special dental subjects, in addition to certificates of honour.

They have also created the following posts to be held for a term of three years, and have appointed the undermentioned gentlemen to fill them : Demonstrator of Operative Surgery, Mr. G. D. Orrock, M.B., C.M., L.D.S.Edin. ; Demonstrator of Dental Mechanics, Mr. F. H. Goffe, L.D.S.Eng. and Edin. ; Demonstrator of Dental Pathology and Microscopy, Mr. C. D. Marson, M.R.C.S., L.R.C.P., L.D.S.Eng. ; and have voted a sum of money to be expended in the fitting up of a complete dental laboratory where the higher mechanical art will be practically taught.

The following works have been added to the Library :—*The American System of Dentistry*, *Harris's Dictionary of Dentistry*, *Cutching's Compendium of Dentistry*.

For the use of the lecturers and demonstrators a lime-light lantern, and appliances of the most modern type, have been fixed in the Anatomical Theatre, and the lectures are now illustrated by lantern slides to bring the teaching quite up to date.

The Council have honoured me by appointing me Hon. Secretary to the Dental Faculty, to be responsible for the management of the details of the Faculty, and for the initialing of dental schedules prior to their receiving the signature of the warden.

During the year the following students have qualified :—Mr. C. A. Hodson, L.D.S.Glas. ; Mr. C. D. Marson, M.R.C.S., L.R.C.P., L.D.S. Eng. ; Mr. P. T. Maden, L.D.S.Glas. ; Mr. G. Foster, L.D.S.Glas. ; Mr. A. Berlyn, L.D.S.Glas.

Nearly 2,000 dental prospectuses have been circulated throughout the Midland Counties amongst the principal medical men and dentists, and the school has been judiciously advertised in a large number of the leading papers.

It is gratifying to observe that every student who has completed his curriculum at Queen's College has obtained his diploma in one or other of the Royal Colleges.

From the foregoing report it will be evident that it is the desire of the Council to make the department complete in all its branches, in every way worthy of the city of Birmingham.

JOHN HUMPHREYS,

Hon. Sec. to the Dental Faculty.

BIRMINGHAM DENTAL SCHOOL DENTAL HOSPITAL REPORT.

I HAVE pleasure in reporting that the Staff of the Dental Hospital are fully satisfied with the progress of the students during the past year. They have attended regularly and assiduously to their duties as dressers. The practice of the Hospital has greatly increased during the twelve months, the patients attending and the number of operations performed being more than double that of the year previous. The senior staff has been increased by the appointment of Mr. W. Palethorpe, L.D.S.Eng.; Mr. Percy Naden, L.D.S.Glas., has been appointed house surgeon; Mr. T. E. Parrott, L.D.S.Eng., has been appointed demonstrator.

At the present time the Hospital is open daily for the students to work from 9 a.m. until 1 p.m., under the superintendence of the honorary officers of the day and the house surgeon. A course of special demonstrations are being given to the senior students, and the demonstrator is taking the new men through the initial stages of their work. Unfortunately the present Hospital building is totally inadequate for the requirements of the work and the instruction of the students. A sub-committee is at present seeking a suitable site for a new building, and it is hoped that a scheme will shortly be prepared which will commend itself to the support of the General Committee and the public of the city. When this is carried out the Hospital will be as well equipped as any other like institution for the educational requirements of modern dental teaching.

F. W. RICHARDS,

Hon. Sec. to the Surgical Committee.

Dec., 1891.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Bearing of Recent Biological Researches on
the Practice of Medicine and Surgery.

BY G. SIMS WOODHEAD, M.D., F.R.C.P. EDIN.

DIRECTOR OF THE LABORATORIES OF THE ROYAL COLLEGES OF
PHYSICIANS (LOND.) AND SURGEONS (ENG.).

IT has long been known that inert particles of various kinds, when mixed with blood just drawn from the vessels or injected into the circulation of the newt, are rapidly taken up by the colourless corpuscles, where they are enveloped in the motile protoplasm. Particles of vermilion introduced in this way are taken into the amœboid mass of the leucocyte, and in it are passed on from point to point in the channels in which leucocytes are usually found. The number of particles taken up by leucocytes which still retain their power of independent motion is sometimes very great indeed, and it has also been noticed that after a time these particles may be ejected, as though all

that could be possibly utilised had been made use of by the cell. In the dust diseases of the lung the proliferating cells derived from the lining epithelium of the air-vesicles have a similar power of ingesting particles of various kinds.* These proliferating cells, with their contents, are apparently carried into the lymphatics of the lung tissue; here the pigment may be disgorged, when it is almost immediately taken up by leucocytes or by the stimulated connective tissue cells, or—and this appears to happen very frequently—the wandering cell with its contents is taken bodily into the larger actively stimulated connective tissue or fixed cells, where all that can be digested is converted to the use of the larger cell, and all inorganic matter and effete material is thrown out, to be again taken up, and carried from point to point, until eventually some, at any rate, may be actually excreted from the body or may become enclosed in a fibrous capsule formed by the very fixed cells that took up the particles into their substance, especially in the lymphatic glands. Let us now go a step further. Examine a section of a lung from a case of chronic venous congestion resulting from mitral disease. Here will be found the same catarrhal condition of the epithelium noted above. In the proliferating cells there is also to be seen in some part or other of the section a considerable quantity of golden-brown pigment, usually in small irregular granules. On careful examination some of these catarrhal cells are seen to contain what can scarcely be anything but coloured blood-corpuscles. In most cases the outlines of these corpuscles have become irregular, as they have been altered by digestion by the ingesting cell; but here and there a plumper, more regular corpuscle, which gives us the key to the whole situation, may be seen. From this plumper ingested corpuscle the various transition stages—shrunken corpuscles, mere pigment particles, or even crystals of hæmatoidin—may be seen. These cells in turn are carried to the lymphatics and lymph spaces, where the same cycle is gone through as in the case of the carbon-holding cells above mentioned. If we examine the tissues around a bruised or incised wound after some time we find that two things have happened: the blood-corpuscles retaining the bulk of their pigment have been taken up by leucocytes, where they have been digested and the pigment has been set free, or the fluid in which the coloured corpuscles are suspended has dissolved out the colouring matter, which, however, ultimately finds its way into the leucocytes and thence into the large fixed cells already described.

It is evident from all this that certain cells in the body have the power of taking up not only foreign particles—*i.e.*, particles derived from without,—but also of ingesting effete or dead material of various kinds and of carrying it to positions from which it may be cast out of the body. This function had been conceded to them for some time, when Karl Roser † suggested an extension of this function, which afterwards, in the hands of Metchnikoff, who approached the subject

* It has recently been maintained that these cells containing the foreign particles are derived not from the epithelium, but that they are lymphoid cells or leucocytes which have made their way from the blood-vessels and lymphatics into the air-vesicles. It seems to me that we have direct evidence that this is not the case; the partially detached catarrhal cells that contain pigment or other foreign particles being usually well made out in well-prepared sections.

† “*Beitrag zur Biologie Niederster Organismen Marburg.*,” p. 18, 1881.

from an independent standpoint, was destined to create an interest in leucocytes unequalled in magnitude since the researches published by Hughes Bennett and Virchow. Dr. Karl Roser put forward as part of a theory as to the immunity enjoyed by certain plants and animals against the attacks of the pathogenic fungi that the contractile cells of the animal body have the power of taking into their substance and there digesting even the active living micro-organisms which in non-immune animals are capable of withstanding the attacks of the devouring cells, and of living on their own account in the tissues and fluids, where they give rise to their characteristic products and set up the special manifestations of the diseases with which they are associated. He held, indeed, that phagocytosis was an essential factor in the immunity enjoyed by non-susceptible animals. Metchnikoff,* whose thorough biological training had prepared him for the consideration of this important question, approaching it from the point of view of the pure biologist, swept aside much tradition and brought to bear upon it much new light. He already had Haeckel's observations on the blood-corpuscles of the lower invertebrates and their behaviour towards pigment particles on which to base his theory, but he went further back still. He knew well that among the lower invertebrates, the amœbæ and flagellated or ciliated unicellular organisms are actually dependent for part of their nourishment upon certain bacteria and fungi which they devour in large numbers, taking them into their substance, extracting from them what they require in the way of nutrition, and then disgorging the degenerated remainder. He pointed out that even one of these small monads is capable of taking into its substance in a very short time (a few minutes) filaments of *leptothrix* as much as ten times its own length. Here, then, we have living, undifferentiated, or only slightly differentiated cells actually attacking and utilising as a part of its every day diet micro-organisms similar in many respects to those with which we have to deal in cases of disease.

Continuing his analogy, Metchnikoff pointed out that in animals somewhat higher in the scale of life, and composed of "layers" of specially differentiated cellular tissue, as in sponges, one special layer may still retain this peculiar general power of nutrition the "mesoderm" cells of which the animal is in great part composed playing the part of the single amœboid protozoa. In the lower invertebrates, indeed, we appear to have the key to the whole position. The whole theory of phagocytosis may be said to depend upon intra-cellular digestion by undifferentiated cells, which cells, in consequence of their imperfect differentiation, retain their "amœboid" motions and powers of irregular contraction. This intra-cellular digestion carried on by the lower metazoa is the function upon which they depend in great part for their nutrition. Extra-cellular digestion carried on by means of enzymes secreted by the cells, but thrown out from the cell before they act upon the nutrient material, gradually makes its appearance as we get higher in the scale of animal life, and certain endoderm cells became specially set apart for this process; but even here the mesodermic cells still retain their power of carrying on intra-cellular digestion. Before we leave this part of the question it may be repeated that these imperfectly differentiated cells do not act in mere self-defence in taking up the lower forms of vegetable life, they are

* "Annales de l'Inseitut Pasteur," vol. i. July, 1887.

actually dependent upon this process of ingestion for their nutrition. It is not an isolated act or a function brought into play for a solitary or a rare occasion, but it is a habit upon which the animal depends for its very existence. This fact is the more important when we bear in mind that any "fundamental" function of undifferentiated protoplasm is comparatively easily again brought into play or stimulated into activity when its presence is again required. It is a fact upon which the very foundation of the phagocyte theory depends, though one which has been too much ignored by most of those who have written on the subject in this country. As the extra-cellular digestive function becomes more highly developed less remains for the amœboid cells to do; but as Metchnikoff points out, in all vertebrates there still remain amœboid mesoderm cells which retain the function or the power of absorbing and removing dead or effete matter, such as weakened or dead cells, foreign particles, and the like. If the development of an ovum, such as that of the cod, be carefully followed, the process of intra-cellular digestion can be easily made out at certain stages in the whole of the cells of which the embryo is composed. Later, however, when the layers are becoming differentiated, and certain sets of cells are becoming specialised, the two kinds of digestion may be seen going on side by side, the more differentiated cells being nourished by extra-cellular digestion, whilst the mesoderm amœboid cells still retain their phagocytic intra-cellular digestive activity. At certain periods of the life history of the incompletely developed animal, when the tail of the tadpole is dropped as it becomes developed into the frog, the degenerating muscles and nerves are seen to be devoured by active amœboid cells, which, commencing at one end of a fibre, gradually bring about its ingestion until the tail actually drops off. In the same way the larvæ of certain vertebrates such as the echinoderms, lose parts or organs during their metamorphic stages; and whether as cause or effect, particles of the tissue of the disappearing organ or part are invariably found in great numbers of the amœboid phagocytic cells that have accumulated at the point where the absorption is going on; whilst in the metamorphoses of insects, where most profound changes take place in the transition from grub or caterpillar to chrysalis, and from chrysalis to butterfly, phagocytosis is a most important factor of the process. The changes go on so quickly that the rapid removal of effete material is absolutely necessary; and this, apparently, is readily accomplished by the enormous number of leucocytes which collect at those points at which organs or parts are to be got rid of.

Leaving the evidence afforded by the changes that take place during development, Metchnikoff continues his search for analogous conditions in the removal of dead or effete matter in after life, in the higher vertebrates after injury or disease, or even during the process of normal absorption such as that found in Ranvier's experiments on nerve-tissue. This observer found that dead nerve-fibres are removed through the intervention of the amœboid cells which appear to take up the myelin of the nerve, and in their substance digest it or carry it away from the point at which the absorption is taking place. That certain cells have this power of absorbing effete matter had long been known, for it had been observed that in the absorption of bone certain large cells, the so-called osteoclasts or giants or myeloid cells, could be seen with granular particles in their interior as they lay in

the Howships foveolæ, which latter appeared to be nothing but excavations made by these large cells. Later still, and since, the announcement by Metchnikoff of his phagocyte theory, numerous experiments and observations have been made on the ingestion of resistant particles by phagocytes. Small fragments of elastic tissues and, as we have already seen, of blood-corpuscles, have been found in leucocytes, which in turn have been taken into the substance of those larger cells, which are apparently derived from the fixed connective cells. These fixed cells undergoing proliferative changes under stimulation, they lose their specialised form, and although, as a rule, they contain only a single nucleus, they approach comparatively nearly the amœboid leucocyte in the fact that they assume an amœboid activity. These large cells, the *macrophages*, as distinguished from the small multi-nucleated leucocytes or *microphages*, play an important part in determining the ultimate destination of all foreign particles, as already seen in the case of carbon pigment. In this connexion, too, may be noted those cases of the carriage of foreign matter to those parts where the building-up process is going on. In the formation of new bone at the end of the shaft or near the epiphyses there is always found an enormous number of small round amœboid cells, but in addition to these are others which must be looked upon as derived from the fixed connective tissue cells which are now in a state of active proliferation. When young animals during the period of bone formation are fed with madder waste there is formed at the seat of growth a pink layer of zone or bone, and it is pointed out that the colouring matter in this case taken up by the leucocytes are specially required, and pigment is then given up, or is taken up by the more active connective tissue cells, to be again deposited in the young bone matrix as it is formed by the osteoblasts. That this is not a fanciful explanation of the presence of the pink colour in this position is evident from Arnold's observations* on the passage of inhaled pigment of various kinds from the lungs to the spleen, bones, and other organs. The process may be slow in the case of adults, but there is then this additional advantage from the observer's point of view : that once in position it remains much longer than when the development and absorption are going on more rapidly.

These mesoderm cells, then, according to Metchnikoff, have as one of their functions (it may be only a secondary function though he considers that it is the special function as we get to the lower end of the scale of animal life) the devouring of all those solid parts of the organism that have become effete or useless. Where they are unable singly to effect this they are seen to combine in order to attack with greater certainty of success masses which are too large to be enveloped in a single organism. In this manner whole bundles of leptothrix may in a sponge be enveloped in a kind of network which is found to be composed of amœboid cells ; these cells combining to bring about what, singly, they could not possibly manage. Particles of organic or other matter when introduced into the abdominal cavities of certain of the echinoderms may, if small, be taken up by single cells ; but in the case of large particles a dozen or more of such cells appear to unite to form a plasmodial mass, which

* Untersuchungen über Staubinhalation und Staubmetastase, Leipzig, 1885.

in this form is enabled to cope with them. The same thing is observed in the giant cells or osteoclasts of bone, which consist of large masses of active protoplasm, with many nuclei usually accumulated near the centre. It may be objected that these large masses may be the result, not of aggregation, but of imperfect division. This undoubtedly may sometimes be the case, for in the parablast of an ovum, or that layer of cells immediately in contact with the yolk of the egg, we have a mass of protoplasm in which, although there occur proliferation and separation of the nuclei, there is no definite segmentation of the protoplasm itself as it increases in amount and the cell increases in size. In these cases, whether it be in the sponge or in the echinus where there appears to be aggregation, or in the parablast of the ovum of a cod where there is partial segmentation, the vital activity of the component individual cells is not only summated, but greatly increased in the resulting giant cell, in which there remains, after the removal of the special cause of the formation of this large plasmodial cell, an increased power of tissue formation. That is, they have, during this period of increased activity, laid by a store of food and energy, though in the parablast it is utilised by being handed on to the cells in the immediate neighbourhood. In pathological conditions such as tubercle, where giant cells are formed, the extra formative power is utilised in the construction of fibrous tissue or in resisting the invasion of the bacilli. That these cells are actively digesting in the myeloid sarcoma is evidenced by the fact that red blood-corpuscles in various stages of degeneration may be seen, sometimes, however, only in the form of particles of pigment which remain undigested and fixed in the cell longer than the proteids of the corpuscle. Helme has also pointed out that similar giant cells or plasmodia play an important part in devouring the degenerated muscle fibres of the involuting uterus, in which the process of absorption must necessarily go on at a very great rate indeed; whilst coming back to the connective tissue cell, Bevan Lewis maintains that the neuroglia cells, and not leucocytes, play the part of scavengers in the removal, or rather the taking up and digestion, of dead or weakened nerve elements and tissues. So far we have spoken of the phagocytic action of these cells in relation to dead solid particles, except in case of blood pigment dissolved out from red blood corpuscles. In this case the phagocytes appear to have the power of separating it and in their substance of rendering it insoluble. It is probable, also, that they have the power of taking up and converting within themselves abnormal chemical products which, as pointed out by Wood and Maxwell Ross,* are to be regarded in a very real sense as foreign bodies in our organism. If this be true, Metchnikoff's theory must be made to include much that he does not at present allow to come within its range.

In all the examples of the phagocyte theory here put forward the amœboid cells have been looked upon as simply doing the work of scavengers. Their duty is to remove innocuous material, organic or inorganic—or, at any rate, material that has, in the quantities in which it is usually present in the organism, no deleterious effect on the phagocyte cells. In the case of phagocytosis in the single-celled amœba or in the mesoderm of the sponges, on the other hand, the

* *Edinburgh Medical Journal*, June, 1891.

cells actually attack micro-organisms, take them into their substance, and use them as food ; so that it would appear as though, in the process of development, this latter power had been dropped, and that, nothing remaining to be done but the "scavenging," except under exceptional circumstances, the more active attacking power had been in great measure lost through disuse. Metchnikoff holds, however—and this is the fundamental part of the whole question—that under certain conditions of stimulation the scavenging phagocytes regain their original function in so far that when the call is made on them, especially if this call is led up to gradually, they may not only remove dead tissues and innocuous micro-organisms, but they may actually destroy micro-organisms, which, if introduced without sufficient preparation of the leucocytes for their reception, would not be taken up, but would gain the upper hand, and ultimately lead to damage or destruction of the organism in which the experiment is made. In this case the amoeboid regains its phagocytic function from the nutritive point of view, whilst its secondary or scavenging power is relegated to a comparatively unimportant position. In order to accentuate this fact we may here repeat the oft-repeated, but still important, experiments made by Metchnikoff on the daphnia or water-flea with the spores of the monospora biscopidate. In this monospora, which occurs as a budding mycelial thread of elongated cells, long, thin, needle-like spores make their appearance in the long axis of the cells. These needle-like spores are taken into the alimentary canal of the daphnia, through which they are driven by the peristaltic action of the intestinal muscles. Once in the body cavity, or in the tissues surrounding the intestine, it is immediately attacked by the white blood-corpuscles, though in some instances it appears to be taken up by the connective-tissue corpuscles, or again, it may develop into the rod-shaped vegetative form. If the daphnia is in moderately good health, which under ordinary circumstances happens in about 80 per cent. of the cases experimented on, the monospora is gradually overcome by the active devouring cells. If, on the other hand, the insect is feeble, or if the spores are ingested in such large quantities that they outnumber the leucocytes, or some are left free after all the leucocytes are engaged, these multiply so rapidly that the daphnia quickly succumbs to its attacks. This at first seemed an absolutely convincing proof of the accuracy of the theory that Metchnikoff had advanced ; but it was still objected that here the conditions for the existence of the monospora were not similar to those in which micro-organisms are present in the blood vessels or in the fluids in which the tissues are bathed. In order to overcome this objection, he took little pith boxes, placed the spores of pathogenic organisms inside them, introduced them into a pocket under the skin or even into the blood-stream, with the result that only the fluid could gain access to them in the first instance, at any rate. Nevertheless, the spores vegetated most luxuriantly. Ruffer,* repeating these experiments with the bacillus Chauvœi, found that not only were the fluids of the body innocuous, but that they actually formed an excellent culture medium, in which the organism could grow, and attenuated micro-organisms regain much of their pristine virulence. He found, for example, that when the attenuated bacillus Chauvœi supplied for purposes of vaccination was placed in small bags made of

* Annales de l'Institut Pasteur, December, 1891.

filter paper sealed with paraffin, and then introduced under the skin of a susceptible animal, and even of a non-susceptible animal, it grew luxuriantly. If now the bag was broken *in situ*, so that the organisms could find their way into the tissues, or if the bag was cut out immediately after the animal had been killed with chloroform and the contents inoculated into a second animal, it succumbed sometimes after a shorter period than when ordinary virulent material was inoculated. In this case, therefore, the fluids cannot have any deleterious effect on the micro-organisms, so that any destruction of these that takes place after inoculation in the ordinary fashion must be accounted for, according to Metchnikoff and his pupils, by the phagocytic action of the amœboid cells. The action of pus-producing micro-organisms, the spirillum of relapsing fever, and the bacillus anthracis have all been fully studied in their relation to phagocytes; but one organism has been taken as the one by which the phagocyte theory is to be tested.

It is objected by the opponents of the theory that the leucocytes (microphages) are always a little too late to catch the erysipelas streptococcus, the organism being found in a zone always a little beyond that in which we have any evidence of inflammation. Wood and Maxwell Ross* showed that, although this was undoubtedly the case, the following inflammation appeared to exert a curative influence, in so far as it appeared to cut short the infective process. Metchnikoff† and Fehleisen, describing the appearances presented on microscopic examination, give first of all an outermost zone, where the erysipelas is spreading, but which to the naked eye appears almost normal, in which the micrococci, multiplying rapidly, completely fill the lymphatics. There is little or no evidence of inflammatory reaction. Passing inwards, however, we come to a zone in which inflammatory reaction has set in. The vessels are dilated, the fibrils of the connective tissue are swollen, and surrounding the small vessels and lying in the lymph spaces are numerous amœboid cells, leucocytes, or microphages, which, like their amœboid types, are acting the part of devouring cells, as many of them contain micrococci, sometimes in considerable numbers. The micrococci are usually so readily stained that they may easily be recognised in specially prepared specimens. Now comes the interesting point. In the next zone these smaller cells with their contents are in turn devoured by the larger amœboid cells—macrophages, probably derived from the fixed connective cells, and each containing a single nucleus only. After this the organisms found in the tissues over which the disease has passed contain only dead and degenerated micrococci; so that, as Wood and Maxwell Ross say, "It would thus seem that the wave of congestion, accompanied as it is by a diapedesis of the white blood corpuscles, has, in fact, cut short the course of the disease." Arguing from this, they decided that if they could set up a certain amount of inflammation they could cut short the duration of the attack; in fact, that they might be able to localise it more or less completely according to the stage at which the disease came under treatment. They therefore decided to use iodine as a local irritant, applying it "in the form of a ring *slightly beyond that portion which is already affected.*" They say, "It is naturally very important that inflammation should extend beyond the limits of the disease in order that it may act

* Loc. cit.

† Virch. Archiv, Bd. cvii., 1887.

as a barrier to its further progress. It is, we think, very probably to the fact that the microbes have already penetrated in the tissues beyond the point where we have the visible signs of their action that we must ascribe the statement so frequently made, that although the treatment with iodine and with other irritants exerts a checking influence as a whole, yet at some point or other the affection still continues to spread. We may in these cases suppose that at some places our zone of irritation was not sufficiently in advance of the presence of the erysipelas cocci. The application of the irritant over the whole surface of the affected skin seems also, on the whole, undesirable, inasmuch as, in consequence of this, the dilatation of the vessels at the margins, which we have considered as the most important factor in the cure, must be interfered with by these being drained into the collateral vessels of the skin, and thus tending to diminish the intensity of the process in this region." Basing their treatment on what had been observed, and bearing in mind the nature of the disease and of the spontaneous cure, they painted with iodine in the manner above described patients suffering from erysipelas, and in all cases where there was any chance of treating the disease the results obtained were most satisfactory, as the barrier of inflammation so set up appeared to serve its purpose most effectually. These observers, however, do not allow that the only effect of the inflammatory process is to bring up phagocytes to cope with the micrococci; they maintain, indeed, that there are two other very important factors to be taken into consideration. They hold that the dilatation of the vessels with the increased flow of blood may allow of the toxins produced by the microbe (which are said to have a paralysing effect on the phagocytes, which are thus unable at first to ingest the active living microbes), whilst, in the second place, they think that the relatively increased supply of oxygen brought up by the increased quantity of blood may be sent on to "the lymphatics, where the oxygen tension must naturally be very low. That this will favour the tissues rather than the microbes in their struggle is evident, when we consider that the streptococci of erysipelas in the animal body flourish best under anaerobic conditions, as is indicated by their strict limitation to the lymphatics." But they say that "the checking of the disease . . . by applying an irritant, such as iodine, in advance of it, indicates that the irritation to the cells and the new set of conditions thereby induced can alone cut short the affection." Since the publication of the paper here referred to, Dr. Alex. Miles, who assisted in carrying on the first series of experiments, has treated a large number of cases of erysipelas with marvellously successful results—results which, I am informed, will shortly be published.

It has been stated above that in the outer zone of the erysipelatous area the cells appear to be paralysed so that they cannot take up the micro-organisms. De Bary observed that in myxomycetes there were certain substances which, when brought near the plasmodium, exerted a vigorous repellent effect, so that it was energetically driven off. If, however, care was taken to bring these same substances near the plasmodium in sufficiently small quantities and sufficiently diluted, the organism would gradually become habituated to the presence of even the concentrated dose. Applying this fact, Metchnikoff pointed out that acquired immunity might be due to a similar kind of acclimatisation of the cells to the presence of what, under ordinary conditions,

would not allow the cells to come into sufficiently close contact with the microbes to allow of their ingesting them. This power can undoubtedly be greatly modified, especially if the conditions be modified very gradually and slowly, and cells which at first would be quite incapable of reacting in the presence of a specific poison may ultimately be able to withstand and perform their special phagocytic functions in the presence of considerable doses of this same poison. For example, Beumer and Peiper* have demonstrated that if a certain dose of the poison produced by the typhoid bacillus will poison an animal, paralysing the amœboid cells, the same dose may be given to an animal that has been carefully prepared by the administration of repeated—at first small, but gradually increasing—doses of the same poison. The phagocytes are educated, or acclimatised as it were, to their new set of conditions, their original power of devouring even pathogenic organisms is regained, and the disease is kept under, as in the case of the healthy daphnia in which the dose of spores is not too great.—*The Lancet*.

(To be continued.)

Excision of the Condyle and Neck of the Inferior Maxilla for Osseous Ankylosis of the Right Temporo-Maxillary Articulation.

By DAVID M. GREIG, M.B., F.R.C.S. EDIN.

THE rarity of osseous ankylosis of the temporo-maxillary articulation makes it desirable that all cases of this condition should be placed on record, especially where operative measures have been adopted for its relief. In few text-books of surgery is the deformity even referred to, while in fewer still is any operation described.

J. C——, male, aged twelve years, came under my care in February, 1890, complaining of stiffness of the jaw and inability to open his mouth. The following history was elicited. Apart from anything bearing upon his present condition, he has always enjoyed good health. In 1885 he had scarlet fever. This was accompanied by right suppurative parotitis, which was followed by gradually increasing impairment of movement at the right temporo-maxillary articulation. In 1887 he was able to separate the teeth for a quarter of an inch, and this was increased to one inch by forcing the jaws open, under chloroform, by means of a wooden wedge. Although this treatment was afterwards continued, the jaws were soon approximated more firmly than formerly, until the teeth could not be separated at all.

In February, 1890, his condition was as follows:—He was well-nourished, and presented nothing noteworthy, except in connection with the condition of the right temporo-maxillary articulation. A hard swelling, indicative of former inflammatory mischief or periostitis, extended from this articulation to the angle of the jaw, and produced undue prominence of the right cheek. The skin near the angle of the jaw was marked by cicatrices. The incisor teeth were

* Zeitschr f. Hygiene, 1887, s. 133, et seq.

directed forwards, leaving a space one-eighth of an inch wide between them. Through this opening the patient had to force all solid food after crushing it with his fingers, and the displacement of the incisor teeth had evidently been caused by the periodic pressure thus exercised upon them. The margin of the lower incisor teeth was posterior to that of the upper. The appearance he presented is shown in Fig. 1.

Having again, under chloroform, attempted unsuccessfully to separate the jaws by the use of wedges, I decided to excise the condyle and neck of the jaw on the affected side. The bone was exposed by a vertical incision extending from the zygoma above to the level of the tragus below. On pushing aside the periosteum the ankylosis was



FIG. 1.

found to be osseous, and the bone much thickened. The osseous mass was snipped through with bone forceps below at the level of the neck of the jaw, and above at the level of the articulation, and the piece of bone thus separated was levered out. As my bone forceps were rather large, the incision had to be prolonged slightly downwards, to gain sufficient room to work in. Though the teeth could now be separated slightly, it was not until the coronoid process had been divided that they could be separated for a satisfactory distance. There was no hæmorrhage of importance, only the transverse facial artery requiring ligature. The wound healed by second intention in about three weeks. His appearance twenty months after the operation is shown in Fig. 2. He has perfectly useful, though one-sided masticatory movement, and is able to separate the jaws about one inch. In extending the incision downwards, some branches of the facial nerve had been divided, as the operation was followed by partial paralysis of the orbicularis palpebrarum (which has since almost entirely passed off), and of the levator labii superioris, levator anguli

oris, and zygomatici muscles. The function of the last-named muscles is taken by the facial fibres of the platysma myoides. The parotid duct may have been divided, and, if so, no inconvenience has resulted therefrom, possibly from the former parotitis having more or less disorganised the gland.

Remarks.—Osseous ankylosis of the temporo-maxillary articulation is caused by any inflammation involving the joint. Gout and rheumatism, especially chronic rheumatoid arthritis, are probably the most common causes in the adult,* while suppuration connected with the exanthemata is the most common cause in children. Extension of inflammation of the middle ear through the Glaserian fissure has



FIG. 2.

been recorded as a cause,† and it also occasionally follows cancrum oris and mercurial salivation.‡ Injury is a rare cause; but Mr. Harrigan has reported§ a noteworthy case of this in which the movements of the jaws were not permanently interfered with until twenty months after receipt of the injury. The operations devised for the relief of osseous ankylosis of the temporo-maxillary articulation are mainly three—viz., Rizzoli's, Esmarch's and Humphry's. Rizzoli's method consists in simple division of the jaw in front of the cicatrix from within, but the great tendency to reunion of the bones renders this operation somewhat uncertain in its results. Esmarch's operation consists in removal of a wedge-shaped piece of bone at the junction of the ascending and horizontal rami, the incision being made along the lower border of the horizontal ramus. Mason|| and others have

* Ashhurst: "International Encyclopædia of Surgery," vol. v.

† C. Heath: "Injuries and Diseases of the Jaws," 2nd edition.

‡ Noble Smith: "The Surgery of Deformities."

§ *Omaha Clinic*, September, 1889.

|| F. Mason: "The Surgery of the Face." 1878.

recorded cases of this operation which have yielded very satisfactory results. Sir George Humphry* was the first to excise the condyle of the lower jaw for osseous ankylosis, and several successful cases of this operation have since been recorded. Mr. Paget† has described and figured such a case in which partial facial paralysis similar to that occurring in my case followed the operation. Occasionally, when bilateral ankylosis exists, one of the above operations requires to be performed on both sides; and Mr. W. H. Bennett‡ has recorded a remarkable case of this kind, in which after repeated operations he excised the ascending rami on both sides, with a result which was wonderfully satisfactory.—*The Lancet*.

REVIEWS AND NOTICES OF BOOKS.

REPORT OF THE HYDERABAD CHLOROFORM COMMISSION. With a Preface by Sir ASMAN JAH, K.C.I.E., Prime Minister of Hyderabad. Bombay: *Times of India Press*, 1891.

THIS report forms a closely printed quarto volume of just upon 400 pages, and these are literally crammed with description of experiments, with physiological observations, with criticism, and with practical instruction in chloroform administration. The whole of this varied matter is interesting, and much of it deeply important. It would be obviously impossible, were it desirable, to review such a Report at any adequate length in the Journal; we must only attempt a notice which may serve to whet the appetite of our readers for the book itself. The physiologist and pathologist, working in domains touched by the questions broached and discussed in this Report, will need no urging to its perusal; to the practical anæsthetist its close study will be an imperative duty.

The Commission owed its inception to the scientific zeal and ardour of Surgeon-Major Lawrie, Residency Surgeon, Hyderabad; but the work could never have been carried out with such completeness without the assistance of His Highness the Nizam. The Nizam not only provided funds, but supplied in most lavish fashion scientific apparatus, besides finding ample accommodation in properly arranged laboratories, in which the work could be pursued under the most advantageous conditions. There have been really two Commissions, the present Report being of the second. The first was applied for by Dr. Lawrie in 1888. Dr.

* *Assoc. Med. Jour.*, 1846.

† *Brit. Med. Jour.*, March, 1889.

‡ *Clinical Society's Transactions*, vol. xxii.

Lawrie was even then a firm believer in Syme's teaching, based upon clinical experience—having given chloroform himself more than ten thousand times without a mishap—but was anxious to show, by experiments upon animals, that in death from chloroform the respiration always stops before the heart. Dr. Lawrie was satisfied that the results of his experiments harmonised with the principles laid down by Syme for the safe administration of chloroform. Scores of dogs were killed by the anæsthetic, and in every instance death resulted from failure of the respiratory function. The conclusions of this first Commission excited great attention, if only for the reason that they appeared to go in the very teeth of those at which the commission appointed by the Royal Medical and Chirurgical Society and the British Medical Association had previously arrived, and were further opposed to the observations of Snow, M'Kendrick, and many other earlier scientific observers. The Nizam's Commission did not expect their conclusions would be accepted at once as final by the whole medical profession; and with the concurrence and active assistance of His Highness at once took steps towards the more thorough threshing out of the subject and settlement of the questions, and particularly the question whether chloroform does or does not affect the heart directly. With these views it was suggested that the Commission should continue and amplify the experiments in association with a trained scientist, whose position and attainments might ensure the acceptance of his opinions by the profession; and in order to bring this scheme to a practical issue, the Nizam's Government placed a sum of £1,000 in the hands of the editors of the *Lancet*, that they might select and send out a representative possessing the desired qualifications. The *Lancet* willingly accepted the duty, and their choice fell upon Dr. Lauder Brunton. No appointment could have been more satisfactory, for no name could carry more weight with the scientific world; and it was considered a further advantage that Dr. Lauder Brunton's views had been very decidedly opposed to those formulated by the previous Hyderabad Commission.

The second Commission met on 21st October, 1889, and continued at work until December 18th, when the experiments were concluded. It would be impossible, within the limits of our space, to give the barest outline of these experiments; suffice it to say that they were throughout checked by every instrument of precision which could be brought to bear, and accurately recorded in

such minute detail that every important step might be retraversed and scrutinised by future investigators. In the result Dr. Brunton was led to endorse the conclusions of the earlier Commission, and to subscribe to the opinion that chloroform, when *properly* administered, kills primarily by influencing respiratory, not cardiac, function. The practical question of the *proper* administration of the anæsthetic we cannot even open. The whole is fully dealt with in this Report, and minute instructions are laid down in accordance with physiological considerations, as well as the vast clinical experience which has fallen to the lot of Surgeon-Major Lawrie.

Whatever may be the ultimate conclusions arrived at in the chloroform question, the scientific world will remain under deep obligation to Surgeon-Major Lawrie, to Dr. Lauder Brunton and their coadjutors, and to His Highness the Nizam, for the share they have severally taken in promoting solution of problems than which none in the whole range of physiology can be reckoned of more urgent importance to mankind.

THE PRESCRIBER'S COMPANION. By THOMAS SAVILL, M.D.Lond., M.R.C.P. Second Edition. Revised by the Author, assisted by T. E. HILLIER, M.B., M.A.Cantab. London: John Bale & Sons.

WE believe it is the rule with the great majority of dental practitioners never to prescribe outside the strict limits of their own speciality, and we know that there are a considerable number of dentists—many of them medically qualified—who have never written a prescription except for a local application, such as tooth powder or mouth wash. In cases where considerations of general health are needed in dental cases, the patients are always referred to the medical attendant, and beyond occasionally discussing and verbally advising the administration of a saline or purgative dose, in some instances of inflammation connected with the teeth, it is made a rule, by perhaps all but a small minority of dentists, never to undertake the treatment of even the most trivial systemic disorder. Works on prescribing, therefore, cannot be in great demand among the practitioners of our speciality. To those dental practitioners who do prescribe or who wish to have the means of refurbishing a somewhat rusty memory, to the medical practitioner and to the medical student, this tiny book may be cordially recommended. It was originally written for use in the dispensary and for the information of the nursing staff of the Paddington Infirmary, of which Dr. Savill is medical superintendent.

Dealing as it does with elementary, though essentially practical therapeutics, and containing a large number of prescriptions which the authors have found most useful, as well in private as in hospital practice, this little work will be appreciated by many readers, and will serve—as the authors intend it should—as a handy book of reference to the busy practitioner.

OBITUARY.

Thomas Cooke Parson, M.R.C.S., L.D.S.I.

WE regret to announce the death of Mr. T. Cooke Parson, of Clifton, at the early age of forty-nine. Mr. Cooke Parson presided over the Western Counties Dental Association before that body became a branch of the British Dental Association, and has been an active and respected member of the Branch Council since 1880; he was also Vice-President of the Branch. It was the wish of many members of the Branch that Mr. Cooke Parson should preside over the Association at their meeting in the Western Counties two years ago, but on the score of health he was forced to decline this honour. Throughout the existence of the Association Mr. Parson has been a constant worker, and most of us are familiar with his valuable contributions to the demonstrations that form such a useful item at our meetings. There has been at no time a more deservedly popular member of the Western Counties Branch, and we feel sure his early death will be sincerely and generally deplored.

Francis Brodie Imlach.

WE also regret to announce the death on Christmas Eve, 1891, of Mr. Imlach, of Edinburgh. Mr. Imlach held a very highly respected position in the Scotch medical world, and occupied the honourable office of President of the College of Surgeons. He was a Fellow of the Edinburgh College and a member of the Medico-Chirurgical Society of Edinburgh. Mr. Imlach was never a member of the British Dental Association.

MICROSCOPICAL AND LABORATORY GOSSIP.

WRITING to the *Dental Review* Dr. G. E. Andrews recommends that in taking impressions for partial plates, where the teeth are long and irregular, a good plan is to fill the spaces between the teeth with plaster, allowing it to harden, then varnishing and taking an impression over all. After removing impression, the "cores" should be taken out and placed in position.

Oil should not be used on impressions or bites, as it softens the plaster coming in contact with it—and its uneven flow prevents obtaining a correct model—collodion, sandarac varnish or soap are better, but a thin shellac varnish probably best—the impression is painted and soaked in water for a few minutes and the cast run ; as soon as it hardens the impression is removed, with the result that a hard smooth model is obtained.

IN the same Journal Dr. W. H. Gage mentions, that by packing the bore of gold tubes and nuts with a few fibres of asbestos before soldering regulating appliances, &c., that the solder will not flow in and choke them up.

IT is said the tincture of iodine mixed with glycerine is more effective as a local application than the plain tincture. This may be due to the retardation of the dissipation of the iodine, or, more likely, to the skin remaining soft, and, therefore, in a better condition for absorbing the drug.

TO CLEAN WAX get any old tin or skillet, put all your waste bits of wax, cards from artificial teeth, &c., into it, put a couple of inches of water in to keep the wax from burning, boil till all the wax is melted, then pour a pint of hot or boiling water into a washbowl or other suitable vessel, empty the contents of the skillet into this and let it stand till next morning. All the sediment will have gone to the bottom. Scrape this off, and should the wax not be clean enough, repeat the same process, only this time add a teaspoonful of sulphuric acid to the melted wax before pouring ; this will make the wax clean and yellow, as when first made by the bees. It will not do to pour it into cold or even warm water, it must be either hot or boiling. If the above directions are carefully followed, there is no wax so dirty but it may be made just as good as ever. Wax can be toughened by adding either resin, Burgundy pitch, or, what is better, Venice turpentine.—*Dom. Dent. Jour.*

THE following tonic and antiseptic mouth-washes are recommended by a contemporary (*Medical News*) :

R ^x	Thymol	...	...	...	7 grs.
	Borax	...	...	...	15 grs.
	Water	...	...	...	1½ oz.

A few drops to be placed in a wineglassfull of warm water, and the mouth rinsed with it. In cases in which the breath is fetid,

owing to deposits about the tonsils and gums, the following wash is more serviceable.

R. Borate of sodium	...	...	15 grs.
Alcohol	...	...	$\frac{1}{2}$ drachm.
Water	...	...	1 pint.
Thymol	...	...	7 grs. <i>m.</i>

DEVITILIZING PASTE.—Dr. MCINTOSH : I would like to mention a formula which relieves pain in eight cases out of ten. It is as follows :

Arsenic (in fine powder)	...	...	four parts
Cocaine hydrochlorate	...	...	four parts.
Menthol	...	...	one part

Glycerine (sufficient to make a stiff paste), applied as arsenic is applied.

I may say with this formula two-thirds of my cases are comparatively free from pain.—*III. So.*

MANY readers no doubt who use accumulators or secondary batteries will be interested to know that their liability to deteriorate is due to the formation of a white insoluble non-conducting adhesive sulphate, which forms from the active materials and lessens their activity while in place, and when it is removed or falls off from the plate carries with it some of the active material. The process is technically known as "Sulphating," and may be to some extent overcome by adding a little sodium sulphate (Na_2SO_4)

Cells when discharged should not be allowed to remain idle, as sulphating takes place very rapidly, and again, care should be taken "not to discharge them too rapidly."

TO PREVENT DARK JOINTS :—In the use of gum sections unless care is taken in flasking, the joints are liable to become dark. To overcome this put on the labial aspect of each a little oxy-phosphate cement before flasking, and when flasked repeat the same on the inner side of the joints, and also lay a strip of gold foil No. 40 right round ; this latter has the effect of considerably brightening the sections when completed.

THE preparation known as pheno-camphor or camphor-pheneque can be made by dissolving three parts of camphor in one part of carbolic acid.

TO COLOR IRON AND STEEL A DEAD BLACK.—A new blacking fluid for this purpose has been invented by M. Mazure. According to *Cosmos*, this liquid has the following formula :

Bismuth chloride	...	...	...	1 part.
Mercury bichloride	...	...	...	2 "
Copper chloride	...	...	...	1 "
Hydrochloric acid	..	...	...	6 "
Alcohol	...	...	...	5 "
Water	...	...	...	50 "

Mix. To use this fluid successfully, the article to be blacked or bronzed must be clean and free from grease. It may be applied with a brush or swab, or, better still, the object may be dipped into it. Let the liquid dry on the metal, and then place the latter into boiling water, and maintain the temperature for half an hour. If the colour is then not as dark as desired, repeat the operation. The editor of the *National Druggist* finds it to work beautifully. After getting the desired color, the latter is fixed and much improved by placing for a few minutes in a bath of boiling oil, or by coating the surface with oil and heating the object until the oil is driven off.—*Sci. Amer.*

THE smoothest and most plastic plaster, free from bubbles, is made by sprinkling the plaster into the water, instead of pouring the water into the plaster. By a little cup with a sieve bottom this is done very rapidly. Add plaster till it appears above the water, then stir vigorously.—*Items of Interest.*

ANNOTATIONS.

DENTAL HOSPITAL OF LONDON STUDENTS' SOCIETY.—The second of the demonstration evenings in connection with the above Society, which took place on Nov. 30th, must certainly be recorded as the most successful yet held. At each meeting a different branch of dental surgery is considered, and on the last evening was devoted entirely to the mechanical. The demonstrations given were as follows : by Mr. David Hepburn on the use of the steam swager in dental mechanics, the demonstrator not only fully explained the working of the machine, but putting it to a practical test by swaging up two or three plates ; Mr. W. H. Woodruff explained and demonstrated the use of plaster for impression taking ; Mr. E. Lloyd-Williams the making of Suerson obturators ;

Mr. L. Read pianoforte wire in regulating. Several plates were shown exhibiting wires bent for forcing out, drawing in, &c. ; the most important point he maintained being to use fairly thin wire and to give each spring a "coil" so as to increase its effectiveness ; Mr. A. J. Watts practically showed the methods adopted in riveting broken plates ; Mr. E. Gardiner the various uses to which fusible metal can be put, and Mr. H. Parris a method of crowning in which copper amalgam played an important part. Previous to the commencement of the demonstrations an exhibition of microscopics took place, the specimens exhibited being illustrative of normal dental tissues. At the conclusion of the demonstrations the members met in the lecture theatre for the purpose of discussing the various methods of practice which had been exhibited. That these evenings are popular and form a most important addition to the work of the Society is somewhat emphasised by the fact that between seventy and eighty members were present. The next evening is to be held this month, when a lantern exhibition of microscopic slides will be given.

THE STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF BIRMINGHAM.—The Sixth Annual Report of the above Society which has come to hand certainly affords good cause for satisfaction on the part of those interested. The roll of members is now forty-one, which is a fair increase, and though the expenses have increased a good balance still remains. Three meetings have been held, at which papers were read by the following : Messrs. F. R. Howard on "The Conduct of Operations under Anæsthetics," Chas. Sims, "Ancient Dentistry ;" Foster, "The Teeth of Mammalia ;" Berly, "Dental Education." By the generosity of the Surgical Committee of the Hospital a bookcase has been provided, and the foundation of a library thereby laid. Another interesting feature is the fact that during the session the management of the Society has been taken up more actively by the students than heretofore. In addition to the scientific meetings, a smoking concert was given at which a large gathering of friends and members were present.

GUY'S HOSPITAL DENTAL SCHOOL.—The dental students at Guy's Hospital gave a highly successful smoking concert on Friday, December 18th, at the Bridge House Hotel, London Bridge. Mr. M. F. Hopson, dental house surgeon, occupied

the chair, and he was supported by the following members of the school staff: Mr. Newland-Pedley, dental surgeon; Messrs. Baker, Badcock, Murray, Pillin and Rouw, assistant dental surgeons; Dr. Silk, Dr. Cock, and Mr. Fripp, anæsthetists. The chairman in his opening remarks welcomed the representatives of the Dental Hospital and the National Dental Hospital who were present; he also alluded to the good fellowship which existed between the allied medical and dental schools at Guy's, members of the former comprising at least half of the audience. A lengthy and excellent programme was well sustained.

VICTORIA DENTAL HOSPITAL, MANCHESTER.—The sixth annual dinner of the past and present students of this hospital took place on Saturday, December 10th, at the Marlborough Hotel, Mr. T. Tanner, the Lecturer on Dental Mechanics at Owens College, occupying the chair. A large number of guests were present, including most of the members of the hospital staff, Mr. Copinger, vice-chairman of the Committee of management of the hospital, Dr. Ashby, Dr. Stallard, Mr. J. W. Smith, F.R.C.S., the Dean of the Liverpool Dental Hospital, &c. This year the number of toasts was, in accordance with a pretty generally expressed wish, reduced as much as possible. After the usual loyal toast had been proposed by the president and duly honoured, Mr. J. W. Seville (Exeter), proposed "The Manchester Medical and Dental Schools," which was responded to by Dr. Ashby for Owens College, Mr. J. W. Smith for the Infirmary, and Mr. W. A. Hooton on behalf of the staff of the Dental Hospital. Mr. F. L. Tanner then proposed "Our Guests and Visitors," and this was responded to by Mr. R. Edwards (Dean of Liverpool Dental Hospital) and Mr. Copinger. The last toast was that of "The President," proposed by Mr. G. G. Campion, and drank with musical honours. During the evening a number of songs, pianoforte and violin solos, recitations, &c., were given by Drs. Ashby and Stallard, and Messrs. C. H. Smale, F. V. Walker, J. C. Lingford, G. Kershaw, H. Dreschfeld, and others. It is gratifying to be able to report that the dinner was in every way a thorough success, and everyone agreed that a most enjoyable evening had been spent.

ODONTO-CHIRURGICAL SOCIETY.—The third ordinary meeting of the Odonto-Chirurgical Society (Session 1891-92) was held in the Rooms, 5, Lauriston Lane, Edinburgh, on Thursday, January 14th, at 7.30 p.m., Mr. G. W. Watson, L.D.S., President,

in the chair. Private Business: Nominations. The following gentlemen will be balloted for: William Guy, L.R.C.P. and S., 11, Wemyss Place, Edinburgh; James M'Cash, L.D.S.Glas., Crosshill, Glasgow; General Business: There was a conversational meeting, and the President opened a discussion on "Should the Dental Pulp be saved or destroyed on exposure."

WATER AS AN ANÆSTHETIC.—In a recent number of the *Dental Cosmos*, Dr. F. H. Lane contributes a short notice on water as an anæsthetic. It appears that in the course of studying and experimenting with cocaine for dental operations he came to the conclusion that it was not all to be desired, and in July, as an experiment, injected some distilled water into the gum around a tooth until the gum became almost white, and then extracted the tooth with the result that there was very little pain. This experiment was followed by others which he details, remarking in conclusion that he finds his success with water as well marked as with cocaine, with the advantage that the risk of poisoning is absent; and again, he found that with one exception the gums healed rapidly and without tenderness, such not being the case with cocaine, in many cases a large amount of inflammation supervening.

BACTERIOLOGY.—Many of our readers who are resident in the metropolis may be pleased to hear that a course of bacteriology will be held in the evenings during January, February and March, at King's College. The course of instruction provided will include lectures, demonstrations and practical work, and will be on Monday evenings from 7 to 9. A syllabus and full particulars can be obtained by applying to R. T. Hewlett, Esq., Bacteriological Laboratory, King's College.

MICROCIDIN.—An antiseptic (microcidin) which has quite recently been introduced is found by Dr. Berlioz, of Grenoble, to consist of naphthol and soda, and one part of microcidin is found to be soluble in three parts of water. It possesses very feeble toxicity, is caustic, odourless and tasteless. When applied to wounds is unirritating, and given internally reduces fever rapidly, and being excreted by the urine renders it aseptic. It is usually used as an aqueous solution in the strength of either 5 to 1,000 as a strong solution, or 3 to 1,000. One distinct advantage claimed is that it does not corrode instruments and dressing materials.

FROM *Discovery* we learn that Professor Lee, chief of the Bowdoin College Exploration party, has discovered a race of Montagnais Indians hitherto unknown to white men, and has brought back a valuable collection of natural history specimens, the fish species which he has collected being double the number previously known to exist in those waters.

THE same journal states that a mammalian tooth has just been discovered by Mr. Charles Dawson, of Uckfield, in a Wealden bone-bed near Hastings. This fossil much resembles one of the lower molars of *Plagiaulax*, a genus well known from the Purbeck beds of Swanage, and is the first evidence of a mammal from the Wealden formation.

Among the representatives forming the first medical Council of the Cape of Good Hope we notice the name of Mr. Frank Strickland of Port Elizabeth, an old student of the Dental Hospital of London.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The Higher Dental Qualification Question.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The paper which I had the honour of reading on this subject at Exeter has had the bad or the good fortune to be much criticised since its appearance. There was first of all a lengthy and animated discussion, which was almost wholly adverse; then followed a deprecating allusion to it in the speech of a prominent medical man at the annual dinner, and later, a leading article in one of the dental journals couched in the same strain. At the recent meeting in London it occupied a portion of the ex-President's valedictory address, and was criticised more in detail in Mr. Ackland's paper. Mr. Bryant also spoke against it at the dinner, and now, as if all this was not sufficient, there comes as a last crushing blow, the letter of your correspondent in the last number of the journal, who signs himself mysteriously "S."

Naturally I am somewhat overwhelmed by all this exuberance of criticism, and feel very keenly my inability to do it justice. It would require a volume to deal in detail with all the arguments which have been urged against the proposed higher dental qualification, and were I competent and patient enough to write one, its readers probably would be few. And so, because of this, and because also the last of all these utterances is probably the freshest in our minds, I should like—with all necessary and due apologies to those who have spoken or

written before—to pass over a good many of the objections which have been put forward, and make only a few remarks on the letter of your recent correspondent. One likes, however, when engaging in a friendly controversy with anyone, to have some idea of the personality of one's opponent. A *nom de plume* may often convey something of this. A mere letter, even though it be a capital one, does not. But in this case, what is lacking in the signature is to some extent supplied by evidence in the communication itself. In his first sentence he refers to the question as one which may “serve usefully as a vent for some of the superfluous energy of our younger members.” Some might be inclined to think from this that the mere fact of “S.” venting some of his “superfluous energy” on the discussion stamps him at once as one of the “younger members,” but I rather myself—partly from this and partly from other points in his letter—incline to the opposite view, and conceive of him as one who writes with the sure judgment which comes only from mature age and wide experience. And so, with the object of impressing this on my mind, I shall venture to complete the word of which he has given us only the initial letter, and address him respectfully as Senex.

“Several distinct reasons,” he says, “*each in itself sufficient*, might be brought forward against such action. The institution of a higher dental diploma might be objected to on the sufficient grounds that it would establish a bad precedent, and would lead to some confusion.” In the face of the fact that there already exist higher qualifications in medicine in the diplomas of membership and fellowship of the College of Physicians and degrees in medicine of the different universities; higher qualifications in Surgery in the diplomas of fellowship of the different Colleges of Surgeons and degrees in surgery of the different universities; and higher qualifications in obstetrics in the degrees of Master of Obstetric Science in the University of Dublin and Master of the Art of Obstetrics in the Royal University of Ireland—in the face I say of these higher qualifications in medicine, surgery, and obstetrics, the phrase “*establish a bad precedent*” seems unfortunate. On this I do not further dwell since “S.” himself gives the point but little prominence, but may pass at once to consider a more weighty reason.

“But perhaps the most conclusive argument,” he continues, “would be based on the statement that it is impossible to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England.”

By a happy coincidence there appeared in the *British Journal of Dental Science* for the 1st of December the questions which were asked a candidate for the dental diploma in the *viva voce* portion of the recent examination. “In dental surgery,” he says, “I was handed several casts of cleft palate and (asked) to say whether they were congenital or acquired, also what structures I should see above a perforation of the hard palate, then the various ulcers of the pulp

and their treatment, and diagnosis between polypus of gum and that of pulp, and finally, what I knew of intrinsic calcification of the pulp?" Now we may at once, I think, admit that in the present state of our knowledge of dental pathology "it *would be impossible* to formulate" a much more difficult question than the one about the *various* ulcers of the pulp and their treatment. It has almost the appearance of a question framed to test not so much the knowledge as the imagination of the candidate; or perhaps he, in the undue mental exhilaration which is said to be sometimes produced by interviews of this kind, substituted inadvertently "pulp" for "gum." But omitting this the questions are simple. Yet "it is *impossible*," says Senex, "to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England." *Impossible* to demand of a candidate a higher knowledge than that of the difference between congenital and acquired cleft palate, of the structures to be seen above the perforation of the hard palate, and of the diagnosis between polypus of the pulp and polypus of the gum! Not *quite* impossible it will probably seem to students of Wedl, Tomes, Salter, Sewill, Rothman, Miller, Black. But we are not confined to conjecture, we may be quite sure. In his speech on this subject at Exeter, Mr. Morton Smale stated that the College of Surgeons was considering the advisability of instituting an honours examination in connection with the dental diploma. On subsequent inquiry, I learnt that one of the chief features, if not *the* chief feature of this examination, was to be the requisition of a higher standard of knowledge in the purely dental subjects. "S." to be sure, professes to "have no information" as to whether the present examination does or does not insist on "an exhaustive knowledge" of "the special science pertaining to dental surgery;" but this is not the case I suppose with the dental examiners at the College; and what is "impossible" for "S." is by no means so for them. On the contrary, quite a possible, and even a desirable thing. So entirely possible and so eminently desirable, that they suggest to the Council that an honours examination should be instituted. The Council then refers the matter to its legal adviser, who reports that such an examination cannot be instituted under the present charter and bye-laws.* Thereupon the matter is apparently allowed to drop; not however because it is impossible, but because of a legal difficulty, and but for this legal difficulty the impossible might even now be an accomplished fact.

Yet another sentence in "S.'s" communication seems to invite remark. "The special science pertaining to dental surgery . . . is, after all, of *extremely limited* extent, and an *exhaustive* knowledge of it is *well* within the scope and powers of *any* industrious student of even mediocre ability."

* *British Journal of Dental Science*, 1890, p. 1097.

In a letter two pages after that of your correspondent "S." Mr. Mummery criticises a previous article by Mr. Sewill on the "Sterilisation of Carious Dentine." In one place (p. 808) he says: "I scarcely think that the rôle of bacteria in caries is quite so simple as the author would have us believe, or that it is correct to describe it as restricted to the production of acid fermentation in *débris* lodged upon the tooth within the cavity of decay, and in the fibrils and organic basis of dentine." Not, it seems, quite such a simple matter after all, since we find two such able and professed students of dental pathology as Mr. Mummery and Mr. Sewill differing somewhat seriously on this and other points. And Mr. Sewill, in his admirable inaugural address to the Odontological Society, speaking of "Odontological Science," says: "Notwithstanding all that has been hitherto accomplished, there yet remains unfinished tasks sufficient to satisfy the scientific ardour of our most zealous labourers. But of the questions which are still left for solution, perhaps those concerning the etiology of caries are to us the most difficult as well as interesting. To illuminate all that is dark in the knowledge of the prime cause of tooth decay, inherent structural inferiority of enamel and dentine, demands far-reaching research." So that according to Mr. Sewill, "the special science pertaining to dental surgery" is *not* of such extremely limited extent as "S." would have us suppose, nor is an *exhaustive* knowledge of it "*well*," or even at all, "within the scope and powers of *any* industrious student," at the time that he is working for his examination. I feel sure that "S." will realise this himself; that he will bow to the decision of two such experts as I have quoted; and that he will recognise, as others will, that he has been dealing too much in generalities, and that many of his statements have to be taken with quite a considerable amount of limitation. And the moral of all this seems to be that the old recipe—to think a little more and talk and write a little less—is still the best recipe for us all. The best, certainly, for those who, like myself, may still claim to be considered young, and not perhaps entirely inappropriate for those who are, as "S." appears to be, no longer so. Its adoption would be likely to make our discussions, whether on this or other subjects, accord more with pure reason than they do at present, and might free us from such freaks of controversy as we find in the sentences:—"The institution of a higher dental diploma . . . would *establish* a bad precedent;" and, "*it is impossible* to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England;" and, "The special science pertaining to dental surgery . . . is, after all, of *extremely limited extent*, and an *exhaustive knowledge* of it is *well* within the scope and powers of *any* industrious student of even mediocre ability." And this assuredly would be an unmixed good.

In the discussion which followed Mr. Ackland's paper at the recent annual meeting—a discussion which from lack of time was necessarily brief and inadequate—Mr. Hutchinson suggested that it would be well

and would facilitate the discussion of this question if I gave details of the course of study I had in view for the higher qualification proposed. But there are two reasons, I think, against this. The first is that in any discussion on the desirability of such a measure as this, the principle should always be considered and decided on prior to and quite apart from questions of detail, just as in Parliament the principle of a Bill is debated and decided on the second reading before its details are examined in Committee. And the principle underlying this proposal seems to me the same as obtains in qualifications in other branches of knowledge. Thus in Arts, in Science, in Law, in Literature, in Divinity, in Medicine, and in Surgery, we find lower qualifications and higher qualifications, all in principle testifying—though in quite different degrees—to the various abilities of different men, to their different capacities for work and for acquirement. To take the subjects of medicine and surgery, which are the most nearly related to our own—a man who means to practise solely as a surgeon takes or may take a higher qualification in surgery, it may be the Fellowship of the College of Surgeons, or a degree in surgery of a University: a man who means to practise solely as a physician takes or may take a higher qualification in medicine, it may be the Membership or Fellowship of the College of Physicians or a degree in medicine of a University. And so too it seems not unreasonable to suggest that a dentist who wishes to widen and deepen his course of study should find the means of doing so in the curriculum of a higher qualification in dentistry, and not be obliged of necessity to look to either a medical qualification or a surgical qualification, or a medical and a surgical qualification taken conjointly, for these require of him no additional attainments in the work which must so largely occupy his mind and time in after life; they are, under the more onerous conditions imposed by recent regulations, being gradually withdrawn from the reach of all but a few dental students; and they may admittedly, if attempted in too short a time, tempt men to neglect their practical dental work. That, it seems to me, is the principle on which a higher dental qualification is urged, and it can, and I think should, be discussed before and apart from details of curriculum.

The second reason which prevents my complying with Mr. Hutchinson's suggestion is simply that in the five or six years which this subject has been in my mind I have not been able to come to any conclusion as to the details of the curriculum which may be desirable. Probably the materials for forming a reasonable opinion are not at present within my reach; at any rate I have formed no opinion, I only happen to have some ideas, and were I to formulate those ideas and put them upon paper now, probably in another twelve months no one would enjoy picking them to pieces more than I should myself. These are matters which may by and by require the most serious attention of those in whom ability, good judgment, and wide experi-

ence are more closely united with good intention than they ever can be, I fear, in me.

The question, however, as "S." intimates, is not yet within the range of practical politics, but that it never will be so, as he so confidently implies, is a matter rather for observation in the future than for prophecy in the present. Nor, I think, has the time arrived for a profitable discussion of the details of the proposed curriculum even by those who may be competent to do so. Still less is it for those who profess to "have no information" as to the scope and depth of the present examination to dogmatise as to what is and what is not possible in regard to it. No, the subject at present is one rather for the thoughts of those who think. If such a development as has been indicated is to be made in our scheme of professional education men's minds will gradually be drawn that way. Each addition to our scientific knowledge, and each new development of our art will point to it; every aspiration for the dignity and honour of our profession will further it; and then it will be seen to be the natural, the logical, and, as I think, the inevitable outcome of the principles adopted in the Dentists Act. So, and so only, shall we realise the dream expressed in some early numbers of our Association Journal—that our education should equal a medical education in degree, though differing from it in kind. That is the object towards which we must strive, being perpetually dissatisfied until it is achieved, and that is an object which will only, if ever, be achieved when our degrees in dentistry—Bachelor and Master of Dental Surgery—range at the universities side by side, and on a par with degrees in medicine and surgery. "S." considers "it is safe to say this will never be done." But time alone can show.

Apologising for troubling you at such length,

I am, yours faithfully,

Manchester.

GEO. G. CAMPION.

Sterilisation of Carious Dentine.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—My communication on the above subject to the November number of this Journal was written with a set purpose which was made sufficiently evident. I wished to bring forward and emphasise the fact that sterilisation of carious dentine, about which a great deal had been written and to which a great deal of undeserved importance had been ascribed, was entirely unnecessary as a routine in treating caries, and, if called for at all, was certainly not useful in any but a small minority of special instances.* I think I sufficiently proved the truth of my proposition, and nothing in the courteous criticism with

* My remarks were of course entirely restricted to cases in which preservation of the living pulp was aimed at. The question of sterilisation of pulp cavities and canals was not touched upon.

which Mr. Howard Mummery honours me in the December number affects in the least the conclusions formulated. If I had been grossly in error in every one of the points to which Mr. Mummery has directed his remarks, those conclusions would still have remained unassailable. Although therefore they do not closely bear upon the issue with which I dealt, I do not object to make a short rejoinder to the observations with which Mr. Mummery has favoured us. With regard to the antiseptic powers of absolute alcohol, I carefully refrained from expressing any decided opinion as to its effects upon any species of bacteria except those present in caries. Mr. Mummery cites some authorities to show that absolute alcohol even there has not the potency I ascribe to it; but I adhere to my opinion, the correctness of which I believe can be demonstrated, that if softened carious dentine be submitted to the sufficient access of absolute alcohol, it becomes effectually sterilised and the contained organisms destroyed. If it can be shown by experiment that any species of organism are able to retain their viability after treatment with absolute alcohol I shall express my astonishment and accept the fact; but I am disposed to think that the authorities quoted by Mr. Mummery do not refer to absolute alcohol—that is, the strongest preparation of spirit which is available for experimental purposes—but rather to spirit in some attenuated form. It is one thing to add spirit in a more or less diluted state to a septic mixture, quite another to submit organisms to the direct action of absolute alcohol.

I cannot plead either ignorance or forgetfulness of the fact that cellular or vascular tissues deprived of intrinsic water would—provided they retained their vitality—soon regain their normal condition of moisture, but dentine is not a cellular or vascular tissue, nor, except on the walls of the pulp cavity, is it near a vascular supply. I cannot deny the possibility or the probability of desiccated healthy dentine taking up moisture derived from the pulp *via* the fibrils, but this must be a much slower and very different process from that which would occur in tissues, the seat of physiological activity, or provided with full blood supply. Whether carious dentine in a stage beyond the incipient which has been desiccated and then hermetically sealed does subsequently take up moisture from the pulp, is to my mind a doubtful matter. My statement respecting the power of absolute alcohol as a dehydrating agent due to its chemical affinity for water was, however, given with the single and evident object of bringing home to the minds of my readers its value for the purpose suggested.

The second sentence of my paper to which Mr. Mummery calls attention is not, as he implies, a statement standing alone. I enter fully into the subject further on, and show, on grounds which he does not attempt to discuss, that the hermetical sealing of a prepared cavity after desiccation by alcohol is enough, as a rule, to put an end to septic action. Whatever may be results of experiments out of the mouth, we know that well-made fillings do render cavities moisture-tight; if they

did not they could never endure permanently in a single case, and we moreover constantly find on removing fillings that the dentine is as dry as on the day the cavity was closed. If metal stoppings are most liable to be leaky there can be no doubt of the efficacy of a coating of cement (applied as I recommended) on a surface of desiccated dentine. Any amount of hypothetical reasoning on these matters does not weigh much against the practical facts to which I referred, that filling of teeth efficiently carried out on the lines laid down long before sterilisation of dentine was talked about was an extremely satisfactory operation, that caries did not recur in the depths of properly-stopped cavities, and that when inflammation of the pulp supervened upon stopping, it was in all probability due in the vast majority of cases not to septic infection, but to the influence of exposure to sudden thermal changes.

Mr. Mummery thinks the rôle of bacteria in caries is not so simple as I have made out. As a physical phenomenon it is, I still none the less maintain, extremely simple, and compared to the action of organisms in true pathological processes—inflammations and systemic diseases—it is simplicity itself. Mr. Mummery may perhaps agree that there may be such a thing as hair-splitting in scientific criticism if not in scientific exposition. Now what is the essence of the whole matter? We have the presence of organic *débris* fluid and microphytes. This results in fermentation, with production of acid sufficient in strength and quantity to dissolve slowly out the earthy constituents of enamel and dentine. The fact that before marked decalcification of dentine has taken place bacteria proliferate for some short distance in advance along the tubules goes to show that they find part of their pabulum in the organic constituents of the fibrils, and it is reasonable to suppose that the fibrils and the organic basis of the tissue, by providing some share of the necessary pabulum, assist in multiplication of acid-forming germs. The essence of the whole thing is the solution of the lime salts, for this alone would suffice to ensure the speedy destruction of the other tissue elements by exposure, waste, and decomposition. This is dental caries. Thanks to the advance of science, to which many workers have contributed, the matter is at length made clear, and—like so many other problems which have not only seemed, but have really been much more difficult and complex—very simple it really is when once explained. Fermentation in caries cannot go on unaided by access of pabulum from without, whether the dentine contain the normal amount of intrinsic moisture or not, and there is nothing wonderful in the fact stated by myself and commented upon by Mr. Mummery that carious action does not continue, although a few organisms may in a large number of instances exist in the tubules of dentine in the depths of filled cavities. Mr. Mummery's explanation of the action of bacteria in caries is, in its essential points, exactly that which I myself have taught; and if the unnecessary and somewhat hypothetical additions

in way of explanation which he has introduced be accepted, surely it cannot be even then wrong to say that the rôle of bacteria in dental caries viewed as a scientific problem is relatively an extremely simple one.

In concluding my paper I was led to put forth a protest against the grotesque exaggeration which had characterised certain recent utterances upon the general bacteriology of the mouth. Mr. Mummery agrees with me as to the exaggeration, but considers it a good thing if it tends to call the attention of the medical profession and the public to the dangers of infection through the mouth. Here, I am sorry to say, I must entirely differ from Mr. Mummery. In the expression of such an opinion I am tolerably sure he stands alone among men of science. I can conceive of nothing more likely to hinder public acceptance of hygienic teaching than the introduction of a tone of exaggeration. The stern facts are quite enough; and exaggeration of them, certain to be sooner or later recognised, must surely breed distrust, which no amount of scientific demonstration in the present state of popular ignorance will afterwards suffice to overcome. In addressing the scientific world nothing can be more fatal to success than the least suspicion of exaggeration. It not only creates distrust, but excites disgust; and I have the best reason to know that writings of the character I lately criticised have been frequently cast aside as worthless, simply for the reason that the exaggeration appearing in some details excited suspicion that none of the statements were to be relied upon, and that the whole composition was unworthy of serious study, attention, or respect.

I remain, sir, your obedient servant,

Dec. 19th, 1891.

HENRY SEWILL.

Comparative Dental Anatomy.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the report of a discussion on a paper "The Dentition of the Felidæ," given in the October number of the *Cosmos*, the following statement is made by one of the speakers:—"Owen has made the last premolar a true molar, but it does not succeed a deciduous tooth."

Can any of your readers who take an interest in dental anatomy verify the first part of this from any of Owen's works? The latter portion of the statement is erroneous, as all the premolars in the Felidæ have succeeded milk molars.

The discussion, which has little to do with the teeth of the Felidæ, is worth reading, and as an inducement I pick out a few passages, to some of which I have taken the liberty of adding a short comment. The italics, I need scarcely say, are not in the original:

"The passage from the archetype bunodont tooth to the scissor-like sectorial form."

"It was not a supernumerary tooth, but was perfectly developed." Are there not many both?

"The *modern thoroughbred* horse has four rudimentary teeth, and only forty of full size." Is such not the case in all the Equidæ, so why this qualification as to modern or thoroughbred?

"With reference to human teeth, man is omnivorous; his teeth are *therefore* heterodont."

"His own opinion is that man is in a state of transition, that the teeth are *waiting to see* which way the specialisation will tend, and that, until that can be determined, there will be uncertainty in forms and numbers."

"Among the Chinese, who subsist mainly on a rice diet, there is a marked modification of the cuspid type, arising from the disuse of meat food, and a marked increase in the incisors." Has this statement any foundation in fact?

"Some of the monkeys have *thirty-four* teeth." If that is the normal number, it should assist us in determining the missing teeth in man.

"Dr. T.: Suppose an autopsy were held and the missing teeth were found in the jaws, would that be suppression? Dr. P.: That *would* be suppression."

"Dr. P. assumes that the teeth are lost because of disuse. How does this theory stand when it is confronted with the *fact* that while the superior lateral is sometimes wanting, the inferior is not lost, and yet it is not so much used as the corresponding tooth in the upper maxillary?"

"He has had for several years a theory to account for the loss of the superior laterals, which was suggested to him by two cases occurring close together, where the suppression could be distinctly traced to double harelip in the family. . . . He has had plenty of cases where there were no laterals, and sometimes not even centrals in families in which there had been harelip."

What of those cases in which a redundancy of incisors accompanied double harelip?

I am, yours, &c.,

A. W.

Mr. Pearsall and the Annual Meeting.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—“An Obscure Member” may discount my opinion to his heart’s content, but he has given me the enjoyment of a hearty laugh, as affording an apt illustration of the good sense of forming an opinion on matters he does not understand from hearsay evidence alone. I have no desire to act as the gas or order regulator of the British Dental Association, but so far as my experience has gone our affairs appear to be conducted on custom rather than on the orderly procedure usual in other associations of a similar kind. This I can say, that I

have written to the Representative Board on the causes of disorder arising at the last annual meeting, but neither my apology for non-attendance at the last Board meeting, nor my communication on these matters have been noted in the printed report of the Board as issued in the Journal. That my criticisms have had some useful effect in the past, I can point to the appointment of the Literary Committee for the selection of papers for the annual meeting, to the zeal and care taken by our popular editor to collect all the matter for the report of the proceedings of the annual meeting, and to the greater correctness and accuracy in the organization of the annual meetings shown since the one I organized in Dublin, these methods of conduct and organization having been used at Brighton, at Exeter and in London, without alteration as I had originated them in 1888. This kind of practical activity has, I am fully aware, made me exceedingly unpopular with the "executive," and with members of the British Dental Association who have, I am sorry to say, only a rudimentary knowledge of the conduct of public business. I have no ambition to be "popular," but despite gross misrepresentation I will continue to do my duty to guide the conduct of our business with more orderly and rational ways than were shown at the late annual meeting. Where members proposed and seconded resolutions that were not set out in writing; where a member was absent when the notice of motion standing in his name was "on," and another member was allowed also in a disorderly way to act as sponsor to it, it being the duty of the chairman to pass on to the next business if the proposer were absent; where an eloquent member "rose to order," but never in one word of his declamatory talk did he refer to the question of order he protested about, or indeed did the chairman ask him to speak on this "question before the chair;" where a discussion upon one of the bye-laws was carried on without any previous "notice of motion," without which, in other Associations, such discussion could not arise; where the report of a committee was received, and a member scolded the whole Association because the members did not discuss it, no provision having been made for its reception; where members were rudely silenced, although in order, in speaking on the papers prepared for discussion; and where the meeting set aside the ruling of the chairman they had so recently elected, that a speaker should spin out his complexity of ideas to thirty-five minutes instead of being content with the usual five or ten minutes more able men and speakers were content to accept with a loyal and generous goodwill for the progress and general convenience of the meeting.

I am, dear sir, yours obediently,

W. BOOTH PEARSALL,

President Irish Branch, British Dental Association.

"Covering."

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I am very pleased to have given some consolation to "An Old Subscriber," and venture to hope, with him, that the letter he refers to may have started a movement which will end in our getting the same rules extended to us as are already applied to the medical profession in the matter of "covering" by the General Medical Council.

With regard to the "sweeping motions," there is the converse of "An Old Subscriber's" aspect of the question, viz., that in future dentists, members of the British Dental Association, will not be able to "practise pharmacy."

No doubt your correspondent can give some reasons why a pharmacist should practise dentistry, but the same reasons, whatever they may be, cannot well be applied to the question of his being a member of the British Dental Association.

If it be urged that the pharmacist in question is also a dentist, all I have to say is, so much the worse for the pharmacy or the dentistry, or both.

It is against this dual principle as applied to dentistry that I protest. Let the cobbler stick to his last, the dentist to the teeth, and the pharmacist to pharmacy. The result will be better cobblers, dentists, pharmacists, and consequently a little better world, for it is only when each factor of the great community does his work to the very best of his ability that the whole will be improved.

Your obedient servant,

MORTON SMALE.

A Satisfactory Mastic Bottle.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—To the correspondent of the November Journal, who desires a suggestion concerning a mastic bottle, I would like to say try those with the bell-top fitting outside the mouth of the bottle with a ground joint. There is no loss by evaporation and consequent thickening of the varnish, they do not "gum" and get stuck, are very clean, and in the case of laboratory preparations the small brushes can be kept inside ready for use. My bottles I bought in America, but they should be obtainable here, or if not, I would suggest to your correspondent the use of a wide mouthed glass stoppered bottle, which, with an occasional slight oiling of the ground part of the stopper, will effectually prevent sticking. Oiling the ground joint of the bell-top bottle is also a safeguard.

I am, Sir, yours very truly,

J. EDWIN HARRIS, D.D.S., M.D.

32, Queen Anne Street, Cavendish Square.

Dublin Masonic Schools.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Mr. Fisher ignores my pertinent questions, and shifts his ground into the regions of the millennium. I think I have shown all reasonable members of the Association "that this section of the body has received that attention which has been bestowed generally

by the medical officer," so far as Dublin dentists are concerned. I hope Mr. Fisher will now begin his experiments in *corpore vili* on the Scottish borders with the rate-collector's books before his coercion bill is inflicted upon the Irish Branch, to harrow our lives—already none too happy—from the inability of our fellow-countrymen across the sea to understand us. I must now, sir, terminate this discussion so far as I am concerned, by wishing Mr. Fisher a prosperous and happy new year, and the greatest enjoyment in the exercise of his favourite hobby "On the banks of sweet Dundee."

I am, dear sir, yours faithfully,
W. BOOTH PEARSALL.

A Request.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Being engaged in investigating the subject of "irregularities in shape" of the teeth, I should be pleased if any of your readers would help me by either lending or giving any spare specimens of dilaceration, honeycombed teeth, gemmation, &c., they may have. In drawing any conclusions on a subject of this character a large number of specimens must be examined, and as the number in an individual collection is necessarily small it is needful to seek help.

I should naturally prefer the gift of specimens, since it allows one to examine them microscopically, which is most important. Still, should your readers be kind enough to assist, I will promise that any specimens lent will be taken the greatest care of.

11, *Queen Anne Street,*
Cavendish Square, W.

Yours sincerely,
J. F. COLYER.

APPOINTMENTS.

H. BALDWIN, M.R.C.S., L.D.S., has been appointed Assistant Dental Surgeon to the Dental Hospital of London, *vice* Lawrence Read, resigned.

WILLIAM HIERN, M.R.C.S., L.D.S., has been appointed Dental Surgeon to the Dental Hospital of London, *vice* Claude Rogers, resigned.

GEORGE ROWELL, F.R.C.S., has been appointed Assistant Anæsthetist to the Dental Hospital of London.

FRED W. TA'BOIS, L.D.S.Eng., has been appointed Dental House Surgeon to Guy's Hospital.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 2.

FEBRUARY 15, 1892.

VOL. XIII.

The New Curriculum.

THE Conjoint Board of the Royal Colleges of Physicians and Surgeons has issued the new Regulations for Students seeking their diploma, on and after January 1st, 1892, and the fact that many dental students obtain, in addition to the special diploma in dentistry, the qualifications L.R.C.P., M.R.C.S., renders the question of any changes in either curriculum of interest to our members.

Looked at from the purely medical and surgical side of the question, the Colleges are to be congratulated on the changes they have made—alterations that will go far, if they be conscientiously and carefully carried out, to ensure that only those with really good sound, practical knowledge will be able to obtain these much-coveted diplomas.

Viewed from a purely dental standpoint, a dental student's career threatens to become a very difficult and lengthy one. If he can spare both the time and money necessary to take

all three diplomas, he will be amply repaid by his increased knowledge in surgery and medicine, for it is manifestly impossible to include the whole of medical education in the dental curriculum.

It may be as well to consider the alterations in one or two different aspects.

From the general point of view, students will only be eligible to present themselves for the Final Examination at the expiration of five years (five winter and five summer sessions).

Four examinations will be required instead of three, and the subjects will not be so capable of being taken piecemeal as before, although in this particular the First Examination remains unchanged; at the second, both subjects must be passed at the same time; at the third, the three subjects may be taken separately; at the fourth, the subjects must be taken together; and at this last examination no candidate will be allowed to pass in one subject without obtaining at the same time at least half the number of marks required to pass in the other.

With regard to the curriculum, we will enumerate the changes made for each examination. In the first, *Materia Medica* has been removed, and instead of three parts, we now have four, viz., Chemistry and Physics, Practical Pharmacy, Elementary Biology (instead of Elementary Physiology), and Elementary Anatomy. Practical Pharmacy may be taken at this or at a later stage.

The three first subjects can be taken at a medical school, or at certain recognised places of instruction, a special list of which will be carefully selected and published.

The Second Examination remains unchanged save that the student must pass in Anatomy and Physiology at one and the same time.

As regards the Third Examination the following new

courses of lectures have been added :—(a) a course of lectures on Pharmacology and Therapeutics (three months); (β) a course of lectures on Public Health. Insanity is to be included in the lectures on Forensic Medicine, and an additional three months has been added to the *post-mortem* work.

For the Final Examination, which is held at the expiration of the fifth or additional year, the following certificates will be required, viz. :—

Of having, subsequently to passing the Third Examination, attended the Practice of Medicine and Surgery, including Clinical Instruction, at a Hospital or other Institution recognised for the purpose during a period of twelve months ;

or

Of having attended the Practice of Medicine and Surgery, including Clinical Instruction, at a Hospital or other Institution recognised for the purpose during a period of six months, and spent a further period of six months in Clinical Study at, at least, two Hospitals or Infirmarys, with or without Medical Schools attached, but recognised for the purpose by the Examining Board in England.

Of having attended Clinical Instruction in Ophthalmic Surgery at an Ophthalmic Hospital recognised for the purpose by the Examining Board in England, or in the Special Ophthalmic department of a recognised General Hospital during not less than three months.*

Of attendance at a Fever Hospital.*

Of having received instruction in Vaccination*.

Of having attended Clinical Demonstrations at a recognised Lunatic Asylum.

* Candidates may fulfil this requirement any time after passing the Second Examination.

Turning once more to the Examination side of the question, the subjects of the First Examination are:—

Part I. Chemistry and Physics.

Part II. Practical Pharmacy.

Part III. Elementary Biology.

Part IV. Elementary Anatomy.

The Examination is partly written, partly oral, and partly practical.

Synopses indicating the range of subjects in the Examinations in Chemistry and Physics, Practical Pharmacy, Elementary Biology, and Elementary Anatomy will be issued.

A Candidate may take this Examination in four Parts at different times, or he may present himself for the whole at one time.

In this Examination Materia Medica is omitted and Elementary Biology takes the place of Elementary Physiology.

SECOND EXAMINATION.

The subjects of this Examination are

Anatomy and Physiology.

The Examination is partly written, partly oral, and partly practical.

A Synopsis indicating the range of subjects in the Examination in Physiology will be issued.

Candidates will be required to pass in both subjects at one and the same time.

THE THIRD EXAMINATION.

The subjects of this Examination are :—

Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy,* Pharmacology (Physiological Action of Drugs), Therapeutics, Forensic Medicine, and Public Health.

* Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination.

Synopses indicating the range of subjects in the Examination in Practical Pharmacy, Pharmacology, Forensic Medicine and Public Health will be issued.

Part II. Surgery, including Pathology, Surgical Anatomy and Apparatus.

Part III. Midwifery and Diseases peculiar to Women †.

† Candidates may present themselves for Examination in Midwifery and Diseases of Women at the Third Examination or at the Final Examination.

In this Examination Pharmacology (physiological action of drugs) takes the place of Materia Medica.

FINAL EXAMINATION.

This Examination shall consist of

I. Clinical Medicine.

II. Clinical Surgery.

III. Midwifery and Diseases peculiar to Women. ‡

‡ Candidates may present themselves for Examination in Midwifery and Diseases peculiar to Women at the Third Examination or at the Final Examination.

Candidates will be required to present themselves for Examination in Clinical Medicine and Clinical Surgery together. No Candidate will be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other.

This Examination is intended to be a thoroughly Clinical one.

From whatever point the alterations are viewed nothing but benefit can accrue, and the General Medical Council may be congratulated on having made the period of study five instead of four years.

The Royal Colleges have shown themselves fully alive to the advancing requirements of modern medical science in having put forth a curriculum to occupy that period that is likely to reflect credit upon itself, while the public may be pleased that such efforts are made to ensure to them that those gentlemen who succeed in obtaining the double qualification shall have passed such examinations after a long period of study as should guarantee that no efforts have been spared to make them careful and painstaking practitioners.

As regards the student of the future, it is true that his career will be a hard one, and will require much intelligence and endurance, but at the same time he should be thankful at having such grand opportunities placed before him, and we trust that with these increased opportunities he will not fail to become to a greater degree than even in past times an enthusiast for his calling and for the well-being of his fellow-creatures.

THE strong affinity of absolute alcohol for water makes it an excellent dehydrating agent. For all practical purposes it can be prepared by adding a few empty gelatine capsules to a two-ounce bottle of alcohol 95 per cent. pure.

The Development of Dentine.

THE address which will be found elsewhere in our pages, upon the development of dentine, opens up to those interested in such subjects a great variety of paths for enquiry and speculation.

Although the issue may seem in itself to be but a narrow one, yet a good deal lies behind it, and indeed it may be said to unsettle a great many of our usually accepted ideas. No adequate notion of the contents of the paper can be gained by any summary shorter than that which it itself contains, or rather of which it consists; nevertheless, it may be worth while to call attention to a few points on account of their general bearing.

Mr. Mummerv has shown that in the case of non-tubular vaso-dentine, the whole of the matrix is formed by the calcification of parallel connective tissue fibrils, which, although they form in their parallel portions a very distinct layer on the surface of the pulp, yet are continuous with a branching connective tissue network in the deeper parts of the pulp.

In tubular dentines a fresh element occurs in the shape of the dentinal tubes and their contents, the nature of which more than ever require elucidation.

From early times in dental literature various authors have drawn comparisons between bone and dentine, but it has been reserved for Mr. Mummery to show conclusively that the resemblance holds good to the extent of a virtual identity in the manner of building up of their respective matrices. Dentine, then, like all other tissues, may become specialised in various directions, but at the root of the thing it is a bone, and there is left to the teeth enamel alone as the structure peculiar to them, for the cementum certainly is not to be regarded as being a specially characteristic dental structure.

It is of course only too easy to strain an analogy too far, but it may be suggested that if enamel be the most distinctive of the several tooth structures, and the dentine is to come to be regarded as a mere sustaining piece of modified bone, the invariable and very early appearance of the enamel organ, even in those teeth which never develop a functional layer of enamel, seems a little more explicable, while such a view might lead on to a modification of our conception of the general homologies of the teeth. Setting aside these more purely speculative considerations, there remains a residuum of problems which are brought into far greater prominence than before; thus it has always been a matter of doubt what may be the homologies and the function of the odontoblasts and their processes the dentinal fibrils. For some time past they have pretty generally been regarded as having played an important part in the development of the dentine, and many writers have been content to think of them as residues of structures more important at an earlier stage of tooth formation. Now, however, the conversion hypothesis must, so far as they are concerned, be abandoned, as we see that in vasodentine they can be and are dispensed with (though cells are to be seen lying close to the surface, just as osteoblasts are to be found on the surface of forming bone), and it seems not improbable that the true interpretation of the nature of the dentinal fibril will be found by the investigation of some of those lower forms of dentine in which they are sparsely present, and the problem is thus in some respects simplified. Indeed, the tendency of all modern enquiry, whether biological, pathological, or even sometimes surgical, seems to be in the direction of the interrogation of simpler and lower forms in which the conditions are less complex, and so the question asked less liable to be obscured—as witness the light thrown upon the at present much discussed question

of phagocytosis in man and the higher animals by the normal assimilative processes in the cells of the lowest forms of animal life.

Whatever its outcome may be, Mr. Mummery is to be congratulated upon having made a substantial addition to our knowledge, and upon having conducted his research with all the patience and thoroughness of modern scientific work.

ASSOCIATION INTELLIGENCE.

Metropolitan Branch.

THE Annual General Meeting was held at 40, Leicester Square, on the 11th inst., the President, C. S. TOMES, Esq., in the chair, and there was a good attendance of members.

The minutes of the last meeting were read and confirmed.

The PRESIDENT announced that the Council had elected the following gentlemen members of the Branch :—Messrs. Paterson, Rushton, Robertson, Woolf, Croll, A. Prager, Plunkett, D. M. Humby, Creasy, and Cutts.

From the Treasurer's Report it appeared that although twenty-nine members had neglected to pay their subscriptions, there was a balance in hand of £7 18s. 1d.

The PRESIDENT announced that the Council had nominated Mr. W. H. Coffin as President-elect. This gentleman's name was therefore submitted to the meeting, and he was unanimously elected.

The Hon. Secretary was re-elected for the next year. The next business was the election of four new members of the Council, in place of Messrs. R. H. Woodhouse, L. Read, H. Weiss, and L. Matheson, who retired in accordance with the bye-laws. Seven gentlemen having been nominated by the meeting, a ballot was taken, and Messrs. L. Read and J. T. Fripp were appointed scrutineers.

Mr. TOMES, in vacating the chair in favour of the new President, thanked the Branch and the members of the Council for having assisted in making the meetings during the past year successful. The Branch was too young to have a history, and therefore there was perhaps not much to be said, but the members had learned to know one another better, and they had had some good discussions.

Mr. Mummery then took the chair, and called for any casual communications.

Mr. W. H. COFFIN narrated his experience of a visit to the county

court, in support of a claim for professional services rendered by another member of his family. His evidence was refused as he himself had not been the operator, and the case adjourned. He thought perhaps a knowledge of this decision might be useful to others.

Mr. HUMBY showed an ingenious arrangement for keeping gold cylinders ready for use. Two large thick slabs of plate glass are brought closely into apposition, the top one being immovable, and forming a cover, whilst the lower one slides forward upon the other and contains rows of crypts, each depression containing a single cylinder.

Mr. H. ROSE exhibited some continuous gum cases to demonstrate the uses to which his mineral compound and gum enamel could be put, either in making facings, complete uppers reproducing the contour of palate, or partial blocks. He also showed complete lower blocks to be lined with vulcanite, and another case showing gum facing with removable teeth, this latter being as easily repaired, should a tooth get fractured, as an ordinary vulcanite case.

Mr. TOMES mentioned a case he had seen within the last few days. A lady patient of Mr. Betts' presented a rather puzzling condition. There had been a fracture of the lower jaw on the left side in the canine region. The case had been treated in the country with an ordinary outside gutta percha splint, and had made a good join, so that it was difficult to say where the fracture was. The bite on the left is thrown out a little—not much. But on the right side the molars meet so as to prop the patient's mouth open. It was a condition difficult to explain, and led one to ask whether there might not also have been a fracture of the condyle on the right side, with shortening of the ramus. In reply to a question, Mr. Tomes said the lady was an intelligent patient, and was sure the bite was normal previous to the fracture.

Mr. HUMBY alluded to cases in which he had found lateral incisors in the upper maxilla in cases of cleft palate.

Mr. PATERSON had also seen the same condition.

Mr. LAWRENCE READ exhibited a molar tooth of one of the extinct Proboscidiæans.

Messrs. Coffin, Bonnell, H. Lloyd Williams, Gill, Reinhardt, Clark, and others, took part in the discussions.

The PRESIDENT announced that Messrs. C. S. Tomes, J. Ackery, W. Weiss, and H. Rose had been elected members of the Council.

The PRESIDENT then delivered the following address :—

GENTLEMEN,—Being fully aware of the tediousness of opening speeches, I do not propose to weary you with a lengthened address this evening. In expressing to you my appreciation of the honour you have conferred upon me by electing me as your President, I must beg your indulgence for any shortcomings, and your hearty co-operation in rendering my year of office a successful one.

Our Branch is yet so young that it is difficult to judge of results, still I cannot but think we have a favourable outlook for the future, and we can congratulate ourselves on the large accession to the number of our members.

We hope during the present session to make arrangements for one, if not more demonstrations, but these will be duly announced when the time and place of meeting can be arranged. In our ordinary meetings I hope that members who have anything of interest to communicate will not hesitate to come forward, for our aim is to obtain free discussion of questions of interest to all members of the Branch.

The Institution of the British Dental Association has led to an interchange of opinions among its members that has been of the greatest value. Formerly men kept every good thing to themselves; now we have them anxious to come forward to render every new method common property, and open to the profession generally. In our Metropolitan Branch I hope this will continue to be the motive of all our meetings.

The discussions so well sustained during our first session, are a good augury for the future, and I hope that this year may be marked by equally interesting meetings. I think it may be well, if agreeable to the wishes of the majority of members, that we should discuss appointed subjects, at all events at some of our meetings; this lends a greater interest to our gatherings, and enables members to come to the meeting prepared to speak.

Whereas at present, the Metropolitan Branch has not evinced any desire to engage in the more speculative aspects of the conduct of the Association, I am sure it will be quite ready to give any such matters full consideration should the necessity arise.

The most important question from a political point of view which has lately occupied the attention of the profession, has only recently come within the range of practical politics, and although on our agenda notice the hon. secretary was mentioned as the fit person to deliver himself on this question, he has asked me to relieve him of this duty, and to deal with the matter in my presidential address instead. I refer to what is called in the medical profession "covering," where a registered or qualified man so shields an unregistered man as to enable the latter to act as if he *were* registered.

I would first remind you of the functions of the General Medical Council. It has full control, not only of the General Medical Register, but also of the Dentists' Register, and unless it can be proved that it has acted *mala fides*, there is no legal appeal from its decision.

It will be remembered that a few years ago the General Medical Council decided that a practitioner who covered an unregistered man would be considered guilty of professional misconduct, and be liable to have his name erased from the Register.

Since the term of notice has expired, several cases have been

brought up and dealt with, with the result that the offending practitioners have been crossed off the Register. Naturally it occurred to the minds of some of those who interest themselves in dental matters, that what was sauce for the medical practitioner, at all events in this respect was sauce for the dental practitioner, and, in view of the then approaching election, that some amount of pressure might be brought to bear on the candidates with regard to this question.

No doubt most members saw Mr. Morton Smale's letter in the medical journals. The President of the British Dental Association and the President and Secretary of the Representative Board presented a memorial, asking that the same rule should apply to the dental branch of the medical profession which already applied to the main body. This communication was presented at the meeting of the General Medical Council immediately preceding the election, and after a discussion, which was in favour of the request, was referred to the Executive Committee, with the intimation that if the Executive of the British Dental Association produced evidence of any gross cases of "covering," they would certainly be dealt with.

I may mention that at the election which followed, Dr. Glover was returned at the head of the poll, so that we may congratulate ourselves upon having a friend at court, and there is good reason to believe that his fellow direct representatives are ready to give any support necessary. While none of us doubt that there are many cases of this professional misconduct in evidence throughout the country, there seems to be some apathy amongst those principally interested, and some failure of effort to do their share of the work necessary to assist the Executive.

Perhaps, however, the lack of evidence is not so much due to apathy as to the difficulty of procuring the evidence. There is a danger that in a great centre like the metropolis we hardly sufficiently take into account the difficulties that surround the country practitioner in this respect, but I put it to the members of this Branch that the duty which lies nearest to their hand at the present moment is not to neglect any opportunity of forwarding to the Secretary of the Association any cases which may fall under their notice. It is necessary to procure satisfactory evidence (by affidavit of one's own patients or otherwise) that a registered man is running a branch practice by means of an unregistered assistant.

It is well that I should here point out that no one objects to the employment of an assistant carrying out work directly under the supervision of the principal, neither of course is there any objection to a registered man having a branch practice, provided that his assistant superintending that branch practice is also a registered practitioner.

I would impress upon you, gentlemen, that the matter is urgent, that the meeting of the Executive Committee is soon to be held, and it would be much to be deplored if, after we have obtained this concession from the Medical Council, Mr. Paterson should be unable to present

evidence showing the existence of this great evil, which we all know is so widespread, and which we all so much regret.

This concluded the business of the meeting. It is expected that the next meeting will be held about March 31st.

Southern Counties Branch.

THE next meeting of the above will be held at the Greyhound Hotel, High Street, Croydon, on Saturday, February 20th. Programme :—3.0 p.m., Council Meeting ; 3.30 p.m., General Meeting of Members. A paper will be read by J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S., on the "Treatment of Fractured Jaw."

Members are specially invited to bring forward "Casual Communications" at this meeting, and to inform the hon. secretary of their nature as soon as possible. 6 p.m., Dinner. Price 4s. 6d. Members will personally oblige the hon. secretary by sending him a post card before Wednesday, the 17th instant, if it is their intention to attend the above, as it is absolutely necessary on this occasion that he should know the exact number likely to dine.

MORGAN HUGHES, *Hon. Sec.*

Midland Branch.

AN informal meeting of the members will be held at the Midland Hotel, Bradford, on Saturday, February 27th, when a paper will be read by Mr. A. B. Wolfenden, L.D.S. Halifax ; subject, "Dental Ethics."

Members desirous of introducing "Casual Communications" are requested to inform the secretary prior to the date of the meeting.

The Bradford members invite the members of the Branch to tea at the Midland Hotel, at 5 o'clock.

The meeting will commence at 6 o'clock.

THE ANNUAL MEETING

of the Branch will be held at Huddersfield in May next.

It is requested that members wishing to read papers or produce matters of interest at the meeting, will notify the secretary of their intention at an early date.

I. RENSHAW, *Hon. Sec.*

ANNUAL MEETING AT MANCHESTER.

THE MUSEUM.

Preliminary Notice.

It has been decided to form a loan museum at the next annual meeting of the Association, to illustrate as completely as possible the

subject of dental irregularities and their treatment. It will be seen from the provisional classification appended that the subject is a large as well as practical one, and capable of affording considerable interest to members. An effort will be made to illustrate it thoroughly by specimens of abnormally developed maxillæ, maxillæ containing abnormal arches or other irregularities of the teeth, individual teeth, models, specimens of appliances used for correction, drawings, photographs, and photo-micrographs.

A large General Museum Committee is being formed to co-operate with the local members and assist in collecting specimens. Meanwhile, members who have specimens of interest, or series of models showing cases which have been treated, and who are willing to lend them for the museum are requested to send them to the hon. sec., Museum Committee, G. G. Campion, 264, Oxford Road, Manchester.

Further particulars of the arrangements made will be published in the journal next month, and also month by month until the date of meeting.

Irregularities of the Teeth.

A.—IN SIZE.

B.—IN NUMBER.

I. *Excess.*

Supplemental (resembling normal teeth in shape).

Supernumerary (of irregular formation).

Retained temporary teeth.

II. *Deficiency.*

C.—IN FORM AND MICROSCOPIC STRUCTURE.

I. *Flexion and malposition of crowns and roots.*

Dilacerations, flexed roots, oblique roots, &c.

II. *Excessive formation in crowns.*

Enamel Nodules, Supplemental Cusps, &c.

III. *Excess in roots (number or size).*

IV. *Defective Crowns.*

Honeycombed and syphilitic teeth.

V. *Odontomes.*

VI. *United teeth.*

D.—IN POSITION.

I. *Irregularities in arches.*

V-shaped arch.

Saddle-shaped arch.

Anterior projection of upper teeth.

” ” of lower teeth.

Non-occlusion of the front teeth.

Lateral distortion of arch due to unilateral extraction.

General crowding of anterior teeth.

II. *Irregularities in individual teeth.*

Teeth inside arch.

Teeth outside arch.

Twisted incisors.

Protruding canines.

Unerupted or partially erupted teeth.

E.—CASES INVOLVING EXTRACTION OF SIX-YEAR MOLAR.

On account of decay, associated with general crowding.

On account of irremediable decay, associated with crowding in the incisor region.

G. G. CAMPION,
Hon. Sec. Museum Committee.

ORIGINAL COMMUNICATION.

A Simple Method of Drawing Microscopical Preparations.

BY A. HOPEWELL SMITH, M.R.C.S., L.R.C.P., L.D.S.

THERE has always been a certain amount of difficulty attending the use of the camera lucida, or Beale's neutral tint reflector for the above purpose. The twisting of the head into an uncomfortable position, the great fatigue to the eyes, and the by-no-means easy task of viewing both image and pencil at the same time, add to the troubles of making a faithful likeness of the object on paper.

To those especially who do not possess a camera lucida, or Beale's instrument, and to microscopists generally, I recommend the following arrangement of ordinary apparatus:—The microscope body is placed in a horizontal position, and the mirror removed from its substage attachment. The microscope slide having been placed on the stage, the illuminant (lamplight for choice) is "condensed" on the slide by means of a "bull's eye" in the same way as for photo-micrography. Care must be taken to "centre" the light. The concave mirror is then attached to the front of the eye-piece of the microscope by a piece of thin wood or a spring, and has its surface at an angle of about 45° with the plane of the anterior glass of the ocular. The image is thus projected on to the paper beneath. No distortion will occur if the outer ring of light is *perfectly* circular. A dark cloth, such as photographers use, is thrown over the draughtsman's head, and also the body of the microscope, and all light excluded save that

through the microscope lenses. Any section can thus be easily, rapidly, and comfortably drawn, and accurate representations of objects magnified up to 500-600 diameters can be obtained.

LEGAL INTELLIGENCE.

Marston v. Glindon.

Before MR. JUSTICE GRANTHAM and a Common Jury.

THIS action, which was commenced on January 23rd, and did not conclude until five o'clock on January 25th, was brought by a dentist's assistant to recover damages for breach of contract in his being wrongfully dismissed from the defendant's employment, and for detention of household furniture, &c., after the dismissal.

Mr. Lawson Walton, Q.C., and Mr. Sinclair Cox were counsel for the plaintiff; Mr. Horne Payne, Q.C., and Mr. L. G. Pike for the defendant.

The plaintiff said he had entered the defendant's employment in 1885 as a dentist's assistant, his salary commencing at 22s. a week, which was gradually raised to 30s. in 1889. In February of the following year a friend of his in Leicester offered him a partnership in a dentist's business there, on the strength of which he gave the defendant notice, but said he would stay for three or six months before leaving. The defendant begged that he would not leave him, as patients always objected to fresh faces, and accordingly, on his promising to raise his salary to 40s. a week, giving him 5 per cent. commission on all the patients he attended to, and allowing him to live in another house (the defendant had taken) rent free, he wrote to his friend in Leicester declining the offer. Previous to his marriage in June, 1890, he saw the defendant in reference to his position, and asked how much notice he would be entitled to, on which the defendant replied that if anything cropped up between them he would give him six months' notice. Everything went well till March 20th of last year, when, according to the plaintiff, chiefly in consequence of his refusing to sign an agreement binding him to serve the defendant under disadvantageous circumstances for five years, the defendant there and then gave him a week's notice, and told him to get out of the house by the following Tuesday. The next day the plaintiff called on the defendant at his private residence, and told him his wife was

expecting her confinement in a day or two, to which he replied that he would not have her confined in his house. On the Tuesday the plaintiff sent his wife to stay the night at a friend's, who had only a small sitting-room to spare, expecting to have the furniture removed the following day to some fresh apartments, but when he returned on the Wednesday to get his furniture, bed linen, &c., he found the house locked, and he was unable to get in. The result was that his wife had to remain where she was in the temporary bed-room, and was confined the following Saturday on a temporary bed.

In cross-examination he said he had never heard that the defendant had put his coat on by mistake, and found in one of the pockets two moulds belonging to the defendant for making artificial teeth. The defendant had told him he had found letters in his box which he thought would justify his prosecuting him for libel. He denied that he had promised to give the defendant a written apology for his conduct.

The plaintiff's wife and one or two other witnesses were called to corroborate his evidence:

The defendant who was then called said he had engaged the plaintiff in 1885 as an "improver," which meant that he had to be on the premises and do all the rough work that a dentist required. In 1887 he raised him to an assistant's place. When he found the moulds by mistake in plaintiff's coat pocket he called him a thief, said he would lock him up, told him to take a week's notice, and "clear off." When looking for dental tools in the plaintiff's box he found the letters referred to, and seeing his name mentioned he read them.

By the JUDGE.—You cannot well have seen your name till after you had read the letters.

When he told the plaintiff to clear out he asked for forgiveness, and said he was very sorry for any wrong he had done the defendant. When the plaintiff called on the Wednesday night with his brother and brother-in-law, the defendant said he called in a policeman because he was afraid of their menacing behaviour, and when the plaintiff shouted out on leaving that he (the defendant) would have to pay for it, he (the defendant) told the policeman to make a note of what he said.

Cross-examined.—It was in consequence of finding the letters, and subsequently finding the plaintiff had misappropriated some of his dental moulds, that he determined to give him a week's

notice. He was sick of the man, and could not bear his sight ; he would not have kept that man even if he had paid him £1,000 a week.

By the JUDGE.—My solicitor drew the agreement I suggested we should both sign ; I believe I must have struck out of the draft, after the plaintiff had seen it, all mention of 5 per cent. commission and holidays, and have altered three into one month's notice, although why or when I altered the agreement I do not know.

An assistant to a dental manufacturing company (limited) gave evidence that, in his opinion, so far as dental assistants were concerned, where weekly payment was given, then also a week's notice was sufficient.

Other witnesses were called, who said there was no fixed custom.

Mr. JUSTICE GRANTHAM having summed up,

The jury retired to consider their verdict, and after half an hour's absence they returned into Court with a verdict for the plaintiff, with £80 for wrongful dismissal and £60 for detention of goods.

Partridge v. General Council of Medical Education and Registration of the United Kingdom and William John Clarke Miller.

Before Mr. JUSTICE DENMAN and a Special Jury.

[The following case which has just been decided, and a report of which we subjoin (from the *Times* of February 10th) has reached us too late for comment, which will consequently be reserved for a future issue of this journal.]

This was an action by a dentist, whose name was formerly on the Dentists' Register, to compel the defendants to restore his name and qualification to the said register, and for a *mandamus* to issue if necessary. The plaintiff further claimed an injunction to restrain defendants from removing his name from the register except in accordance with the provisions of the Dentists Act, 1878 (41 and 42 Vic., c. 33). The plaintiff also claimed £10,000 damages for the wrongful erasure of his name from the said register. The defence was that plaintiff's name had been erased from the register under the provisions of section 13 of the Dentists Act.

Mr. Willis, Q.C., and Mr. Beddall were for the plaintiff; Mr. Reid, Q.C., and Mr. Muir-Mackenzie for the defendants.

Mr. Willis, Q.C., in opening the plaintiff's case, said that when the Dentists' Act, 1878, was passed it was directed that a register of registered dentists should be kept, and that unless a dentist's name was on the register he could not sue for his fees, and was liable to certain penalties for describing himself as a dentist. The plaintiff, in 1868, after a course of study at the hospitals, under well-known professors, began to practise, first at Baker-street and later on at South Kensington. By section 6 of the Dentists Act, it was enacted that any person who—(1) is a licentiate in dental surgery or dentistry of any of the medical authorities, or (2) is at the passing of this Act *bonâ fide* engaged in the practice of dentistry or dental surgery, shall be entitled to be registered under this Act. The plaintiff did not wish to register on the second ground, and accordingly, after examination obtained a diploma from the Royal College of Surgeons, Ireland, under which qualification he claimed registration. One of the terms imposed by the Royal College was that no one holding their diploma should advertise himself in any way, under pain of forfeiting his diploma. This condition was accepted by the plaintiff, and, until a later period, the College made no complaint against him. In 1881, however, his sight began to fail, and in 1882 he became quite blind. The plaintiff, although he could no longer himself do any manual labour, was perfectly competent to advise those who were his assistants. He therefore formed the idea of establishing what he called the "South Kensington Ladies' Dental Institution and Association," to treat ladies in reduced circumstances and others at a reduced scale of charges. In order to make the institution known it was necessary to bring it before the public, and circulars were accordingly sent out. In 1883 the College heard of the plaintiff's advertising his institute, and plaintiff, who at that time thought that the loss of his diploma would entail the loss of his right to be on the register, no doubt tried to keep matters straight. In July, 1885, the College cancelled his diploma, but not until June, 1886, did the defendants strike plaintiff's name off the register. This, the plaintiff expected, would be the result of the diploma being withdrawn, but in February, 1887, he was advised to apply that a writ of *mandamus* should issue to the General Medical Council to replace his name on the register. In June, 1887, the rule was made absolute by a Divisional Court, who held

that, although plaintiff had lost his diploma he was still entitled to be on the register. The defendants appealed, but the Court of Appeal affirmed the judgment of the Divisional Court, and plaintiff's name was accordingly restored to the register. Plaintiff now thought all his troubles were at an end, but he soon found that his relations with the Royal College were to be construed into "disgraceful conduct in a professional respect" under section 13 of the Dentists Act, and that his name was to be erased a second time from the register. On November 8, 1887, a communication was sent by the council to the Royal College suggesting that inquiries should be made as to plaintiff's conduct, and on November 10, before any reply had come or any actual charge been made, plaintiff received notice from the council that a charge under section 13 of the Act was being made against him. On November 12 the Royal College wrote making a charge against plaintiff, and asking that his name should be erased from the register. In the letter of November 10 plaintiff was informed that the case would be investigated by a committee appointed under section 15 of the Act, on November 23, and that he could make his defence in writing and attend to establish any facts he might wish to submit. On November 18 plaintiff replied that the charge was the outcome "of a suggestion made by one of the Judges in the Court of Appeal," and that at the time when he promised not to advertise he did not expect to become stone blind, and, under the circumstances, he considered himself justified in the course he had adopted, his institution, unlike so many others, being a genuine one. On November 21 plaintiff was informed that the report in his case was to be made on November 24, and on November 23 he was informed the report would be considered on November 25. On November 25 a meeting of the council was held, about 25 members being present, of whom six were connected with the Royal College of Surgeons of Ireland. The plaintiff did not appear, and it was resolved—(a) that plaintiff had committed the offence charged—*i.e.*, that he had advertised himself; (b) that his offence was disgraceful conduct in a professional respect; (c) that his name should be erased from the register. The question was, therefore, whether "mere advertising" could, under any circumstances, justify the council in erasing plaintiff's name from the register. Could it be held to be professional misconduct, or was it not one of the "trivial offences" contemplated in the same section (13) of the Act, which were not to be a

ground of erasure? The defendants were both accusers and judges in this matter, and could not be held to have made an honest use of the power and discretion vested in them.

The whole of the defendants' answers to interrogatories and various minutes of the council having been read,

Dr. SEPTIMUS GIBBON, examined, said he had known plaintiff for some years. He became a patron of his institution, and allowed his name to appear on plaintiff's circulars. On October 7th he received a letter from Mr. Miller, the registrar of the council, purporting to be written by direction of the president. It was on the subject of his name appearing on the circular. He then withdrew his name from the circular. Not cross-examined.

HENRY FRANCIS PARTRIDGE, examined, said he was a surgeon dentist from 1866 until his name was erased from the register. In 1878 he signed a declaration that, while he held the diploma from the Royal College of Surgeons of Ireland, he would not advertise. At that time he had no intention of doing so, but when he became blind he found that his best patients were leaving him, and he had to see what he could do to avoid ruin. He conceived the idea of founding the South Kensington Ladies' Dental Institution. The motto was to be "*maximum value at minimum cost.*" He advertised at a cost of thousands of pounds. Then imitators arose, and he had to advertise still more. He had the support of over two dozen medical men, and used their names with their sanction. He thought that if he lost his diploma he would lose his right to be on the register. Under sections 3 and 4 of the Act he would render himself liable to various penalties if, not being on the register, he continued to practise. He kept his diploma hung up in the surgery, and that was one of the reasons why he did not return it to the college at the time it was cancelled. The first erasure of his name from the register affected his business, but the second removal was a much more serious cause of loss, as the public, seeing that so many dentists advertise, would not believe that that was the reason why his name had been struck off the register. Medical men withdrew their support, and he was unable to sue in respect of work done or services rendered. This prevented him from giving credit and that caused a further loss. He had lost £2,000 a year since 1887 from being off the register. He had been prosecuted by the British Dental Association, and fined £5 and £3 3s. costs since that date.

Cross-examined by Mr. REID, Q.C.: He was prosecuted in

July, 1888, for calling himself a dentist. It was not for using the letters L.D.S. after his name. He used "Late L.D.S." While he held the diploma from the Royal College of Surgeons of Ireland he spent over £10,000 in advertising. He had promised in 1883 to discontinue the particular circular the Royal College objected to, but he made no pledge as to the institution or association. He did not wish to be hampered by the diploma. He did not mean the Royal College to think he would not advertise the institution. When his first case was in the Court of Appeal, "*Reg. v. Medical Council, &c., ex parte Partridge*" (L.R. 19, Q.B.D., 467), Lord Esher, Master of the Rolls, and Lord Justice Lopes both made remarks about his conduct towards the Royal College of Surgeons. He had also sued the council in respect of their first erasure of his name from the register, "*Partridge v. Gen. Med. Council,*" &c. (L.R. 25, Q.B.D., 90). That case went against him, on the ground that there was no *mala fides* on defendants' part. No medical men had complained of his having used their names on his circulars without their sanction. He claimed £10,000 damages. He claimed for all his bad debts, £563, for which he could not sue. He also claimed for the sum he had spent in advertising, £5,000, which sum had been thrown away because of his being taken off the register. He claimed £3,500 for the circulars he had sent out explaining the cause of his removal from the register, besides the cost of altering his cards, plates, and lamps. He also claimed for the fine and costs he had had to pay in 1888, and for all repairs and expenses he had been put to since January, 1888, in respect of his business premises. These losses were not due to his failing health, but to the action of the defendants in wrongfully erasing his name from the Dentists' Register.

Re-examined by Mr. WILLIS, Q.C.—Some of his patients had, since his removal from the register, given him notice that they would plead that to any action he might bring against them in respect of fees. None of the medical gentlemen's names who were on his prospectus were used without their sanction. None of these gentlemen complained of their names being used until May, 1888. His prosecution at the Westminster Police-court on July 31, 1888, was for using the "title of dentist." He had never hawked his circulars about or sent them out under-lined. The Royal College of Surgeons in Ireland had complained of his advertising in 1883, but his diploma was not cancelled until July, 1885.

Mr. SKRIMSHIRE, examined, said he had been secretary to the plaintiff since January, 1889. Plaintiff's gross receipts were—From June, 1885, to June, 1886, £4,472; from June, 1886, to June, 1887, £4,334; from June 1887, to June 1888, £4,790; from June 1888, to June 1889, £3,977; from June 1889, to June, 1890, £3,506; from June, 1890, to June, 1891, £3,112; and from June, 1891, to December, 1891, £1,200.

Cross-examined by Mr. REID, Q.C.—The best year was from June, 1887, to June, 1888, after plaintiff's name had been erased from the register. That was because it was the Jubilee Year—everything was better that year. Plaintiff's health had failed more rapidly since his name was erased from the register.

Mr. WILLIAM ASH, M.R.C.S.Eng. and L.D.S.Eng., examined, said he had been thirty years a dentist and assisted plaintiff. Plaintiff's practice had gone off since his name was erased.

Not cross-examined.

Mr. EDMUND PINTO, examined, said he had been with plaintiff to learn his business since 1887. Plaintiff's practice had fallen off since that date.

Not cross-examined.

At the conclusion of plaintiff's case,

Mr. REID, Q.C., on behalf of the defendants, submitted that there was no case to go to the jury. If the council had acted *bonâ fide* after a due inquiry as required by the Act, this Court had no jurisdiction—"Allbutt v. General Medical Council" (L.R., 23 Q.B.D., 400). This was a case under the Medical Act, but the same principle would apply to the "Dentists Act." In "Partridge v. General Medical Council" (L.R., 25 Q.B.D., 90), it had been held no Act would lie unless there was *mala fides* on the part of the council. "Leeson v. General Medical Council" (L.R., 43 Ch.D., 366) was to the same effect. There was no evidence for the jury that defendants had acted either maliciously or without reasonable and probable cause.

Mr. WILLIS, Q.C., for the plaintiff, submitted that medical cases could have no bearing on dental cases, as they were under separate Acts, the words of the Acts not being the same. Under section 15 of the Dentists Acts, the Dental Committee were to report facts on which the council were to act. It was not for the jury to say whether there was any "evidence" of disgraceful conduct before the committee, but whether there was any "proof" of disgraceful conduct as defined in section 13. In "Reg. v.

Owen" (15 Q.B., 476) it was held that a similar question arising under 9 and 10 Vict., c. 95, s. 24 was for the jury. The questions for the jury were:—Firstly, was there any "proof" of disgraceful conduct in a professional matter before the Dental Committee? Secondly, were not the plaintiff's accusers his judges, *i.e.*, was not a member of the Royal College of Surgeons, Ireland, who had taken a part in formulating the charge against plaintiff, one of the persons who tried him? If so, the conviction could not stand—"Reg. v. London County Council, *ex parte* Akkersdyk" (L.R., 1892, 1, Q.B., 190), "Reg. v. Justices of Hertfordshire" (6 Q.B., 753). Thirdly, did plaintiff have a proper notice given him by the defendants of the step they were about to take, and did he have an opportunity of attending to defend himself? All the notice he had was the letter of November 10, that he "might attend to establish any facts," and two letters of November 21 and 23 to inform him that the report would be considered on November 24 and then November 25. He was not invited to attend on those dates. Fourthly, whether or not defendants had not been guilty of malice, *i.e.*, used their powers under the Act from other motives than those which should have influenced them. At the time when plaintiff's name was first removed from the register, the charge of "disgraceful conduct professionally" was never contemplated. It was made afterwards because of the remarks of Lord Esher (Master of the Rolls) and Lord Justice Lopes in the Court of Appeal. The haste with which everything was done was in itself evidence of malice, and the want of proper notice to plaintiff to attend also showed what the state of the council's mind was at the time when they were dealing with plaintiff's case. It was a foregone conclusion from beginning to end.

Mr. BEDDALL followed on the same side. The real charge against the plaintiff was that he advertised, in violation of his undertaking to the Royal College of Surgeons of Ireland that he would not do so while he held their diploma. Yet the committee wound up their report with this phrase, "Mr. Partridge still continues to advertise." This showed what was passing in the minds of the Dental Committee. On the point that plaintiff's accusers were his judges, counsel cited "Dines v. Grand Junction Canal" (L.R. 3 H.L.C., 759), "Rex v. Gudridge" (5 B. and C., 459), and "Reg. v. Allan" (4 B. and S., 915). On the point as to want of proper notice to plaintiff to appear and make his defence, counsel cited "Capel v. Child" (2 C. and J., 558). The case of

"Adam and Eve" was the oldest and best known case on this point; they were asked what they had to say before they were punished, but the Medical Council was above hearing any explanation plaintiff might have to make.

Mr. REID, Q.C., having replied,

Mr. Justice DENMAN said he had come to the conclusion that there was no evidence to go to the jury on any of the four points relied upon by the plaintiff. It was a painful case to have to deal with, owing to the plaintiff being afflicted as he was. His lordship then proceeded to review the evidence, commenting on the various dates and facts as he proceeded. He had no option but to nonsuit the plaintiff.

Judgment for the defendants with costs.

Execution stayed for 14 days, and until appeal heard, if notice of appeal given within that time.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odontological Society of Great Britain.

[WE had intended to publish collotype illustrations of Mr. Mummery's Address, but owing to a misunderstanding with regard to the wishes of the council, the matter has been delayed until too late for the current number. We hope to produce these illustrations in a loose page next month, so that they may be transferred to this number for binding.]

The usual monthly meeting of the above Society took place at its rooms, 40, Leicester Square, on Monday, February 1st, Mr. J. HOWARD MUMMERY, M.R.C.S., L.D.S., President, in the chair.

Mr. Christopher Heath, F.R.C.S., was elected by acclamation an honorary member of the Society.

Messrs. Wheatley, Roughton, Woolf, Percy Smith, Edgelow and Harris, were elected resident members; Messrs. Cooksey, Amoores and Palethorpe, non-resident members.

The CURATOR stated he had received a specimen for the museum from Mr. Oswald Fergus, of Glasgow. It was the left upper lateral root, on which a tube tooth had been crowned as long ago as 1840. The crown was firmly attached to the root. The corresponding tooth of the opposite side contained a gold filling inserted fifty-nine or sixty years ago.

Mr. C. S. TOMES showed some sections cut from a tooth picked up in a churchyard; it had found its way to the surface after having probably been buried many years. He said that its chief interest was owing to the dentine being tunnelled by borings of uniform diameter,

which could be no other than the work of a fungus. Mr. Mummery had suggested that its manner of growth was like some of the moulds. The borings were in two directions, chiefly at right angles to one another viz, the one along the dentinal tubes, which were greatly but uniformly enlarged by it; the other, along planes corresponding to incremental layers, along which dentine so often broke up. Along the dentinal tube the enlarged portion passed abruptly into that unchanged, so that it could not be the action of a chemical solvent passing down the tube. Borings were also seen in directions other than that of the tubes or the lines of growth. This fact had a bearing upon the phenomena of caries, for supposing the organisms of caries actually produced disorganisation of tissue by means other than those of fermentation, his section showed the possibility of tunnelling taking place when no chemical action was at work.

The PRESIDENT then delivered his Inaugural Address. Mr. Mummery said he proposed to depart from the usual routine practice and to make his address one of a special nature. His attention had for some years been devoted to the structure and developmental relations of dentine, and upon this he proposed to base his remarks. Referring to the views current concerning the structure and development of bone, he adverted to the investigations of Professor Sharpey, who showed that bone consists of lamellæ, themselves formed of transparent fibres, decussating in a fine network. Von Ebner had shown these to be composed of finer fibres, resembling bundles of white connective tissue. Bundles of these pass obliquely between the lamellæ (penetrating fibres). Treating of intra-membranous ossification he showed, from a central bony mass, spiculæ radiate, which under a microscope are seen to be continuous with the osteogenic fibres. These are chemically identical with white connective tissue fibres, and are in some cases actually continuous with them. Large granular corpuscles cover them, filling up the interstices. The development of long bones was then described and shown to be sub-periosteal. Passing to the periodontal membrane, a similar disposition of anatomical elements was shown to obtain. Bundles of fibres passing from the pericementum into the cementum persisted as "penetrating fibres." Osteoblasts were, according to some authorities, held to be converted directly into bone, some remaining non-calcified as lacunal cells; while, according to others, they elaborated osteogenic substance, and were not changed into bone. About the development of dentine two theories were advanced: (1) that the odontoblast cells are converted into the matrix of the dentine and sheaths of Neumann directly, their processes being uncalcified, and forming the dentinal fibril; and (2) that the odontoblasts secrete a substance, which, by calcification, becomes the matrix. If the odontoblast cell be converted into dentine by actual change of substance, this must take place in three degrees: (1) little changing in the fibril; (2) the portion of cell forming the sheath of Neumann being

altered so as to be resistant to acids; (3) the rest of the cell be hardened into matrix. The portion towards the already formed dentine being used up, the cell maintains its integrity from beneath, and hence one cell only forms the dentine about one tubule. Mr. Mummery discussed the very various functions attributed to the odontoblast by different authors, referring to Mr. Hopewell Smith's contention that they might act as nerve endings—a view that Mr. Mummery thought was hardly consistent with the fact that no considerable nerve filaments are found entering them. Speaking of the relations of the fibril in pulp, Mr. Mummery thought much investigation would have to be made before any very definite statements could be advanced. Klein had believed the fibrils sprang, not from the odontoblast, but from a layer of deeper cells. Mr. Mummery had found in some specimens of the teeth of embryos processes could be seen to arise from odontoblasts. In others of adult teeth, fibrils could be traced to layers deeper even than those described by Klein.

Passing to his own recent investigations, Mr. Mummery pointed out that in a longitudinal section of a bicuspid prepared by Weil's process, there could be seen spiculæ-like processes projecting into the pulp cavity. These bundles of fibres were continuous with the calcified substance of the dentine on one side and the pulp on the other. This appearance the examination of other specimens showed to be permanent. These prolongations were very transparent. In older teeth, where the deposition of dentine is not active, and odontoblasts are absent, the fibres were marked. In stained specimens, where the continuous layer of the odontoblasts was not visible, bundles of fibres were distinctly seen and were in some cases crowded with small cells, the nuclei of the odontoblasts being seen between the bundles. This appearance suggests, Mr. Mummery thinks, that of the osteogenic fibres in calcification in membrane. In young teeth, the fine connective tissue fibres are seen passing into the uncalcified portion of the matrix. Another point shown in these specimens was the fine striations of the more recently calcified dentine.

In the pulp of the elephant's tusk Mr. Mummery found a strongly marked connective tissue incorporated with the dentine, and in the incisor of the rat a still more marked passage from the connective tissue of the pulp into the dentine was detected. In the hake fish (*Merlucius*) connective tissue bundles were seen to be directly concerned in the process of dentine formation. A distinct layer of connective tissue fibres were in fact surrounding the pulp cavity, and seemed to be continuous with the dentine. When these fibres appear as a distinct layer, cells are not easily detected in connection with the dentine, but in some specimens cells might be seen forming a layer in contact with the dentine, and traceable into the bone of attachment at the base of the tooth, where like cells are in contact with the bone.

Reviewing these appearances, Mr. Mummery thought the current views concerning the development of dentine must be modified, and that strong evidence existed to show that dentine, like bone, is formed on a connective tissue formation. Such a surmise was also supported by an examination of the pathological appearances of decalcifying dentine in caries, and authorities were cited bearing upon this point. Further evidences of the laminar nature of dentine were given by some of Mr. Mummery's specimens. It must appear, then, that if his views were correct, and they coincided with those of Von Ebner, it would be necessary to place dentine into a new position and class it under the connective tissues. The matrix consisting of a network of connective tissue fibres would discountenance the view of the odontoblasts being directly converted into dentine, and favour that which asserts (Baume) that they secrete a material which subsequently calcifies.

The address was illustrated by some extremely beautiful lantern slides, which were skilfully shown by Mr. Curtis and explained by Mr. Mummery. The points were further explained by sections placed under microscopes for the inspection of members.

Mr. C. S. TOMES, F.R.S., spoke in warm praise of Mr. Mummery's work, the labour attending which, he said, no one could estimate unless he had actually been engaged upon a similar research. Examination of Mr. Mummery's specimens and a careful re-inspection of his own had convinced him of the truth of Mr. Mummery's views, and so had altogether modified Mr. Tomes' published views concerning vaso-dentine. The paper had opened a wide field for further work, especially in elucidation of the dentinal fibrils, of which Mr. Mummery had found little to say.

Mr. SYDNEY SPOKES also complimented the President upon his address, and asked whether he could throw any additional light upon the distribution of lymphatics in the structures he had described. He (Mr. Spokes) had been working in the same direction as Mr. Mummery, and had seen several of the appearances he now described and explained.

The PRESIDENT having briefly replied, the usual votes of thanks were passed, and the next meeting announced for March 7th.

Liverpool Dental Hospital.

THE thirty-first annual meeting of the subscribers and friends of this Institution was held on January 28th at the Town Hall. The Mayor, Mr. J. de Bels Adam, presided, and there was a good attendance, including Alderman Grindley, Messrs. Waite, G. Wynne, C. Birchall, A. Ralph, H. E. Brakell, J. R. R. Scott, J. Wannop, T. Mansell, R. Edwards, W. L. Jackson, &c.

The committee, in their report, which was read by Mr. JACKSON

the honorary secretary, stated that the total number of patients admitted since the formation of the Hospital amounted to 282,181. During the past year the number of patients treated at the Hospital had been 15,769, and of operations 21,371. The Committee recorded with thanks a donation of £5 from the Earl of Derby, the President of the institution, and one of £7 7s. 2d. by Mr. J. Wannop, to liquidate the balance of the "Brakell Memorial Fund"; also a donation of £5 5s. from A. A., per Mr. L. S. Osborne, and others of smaller amount. The Committee regretted the resignation of the honorary treasurer, Mr. J. Wannop, to whom their thanks were due for his past services; and they also recorded their sympathy with their Chairman, Sir James Poole, on his late serious illness, and trusted that his health would be re-established by his journey to India. The "Quinby Students' Prizes," to the best and next best operators for the past year, had been awarded to Mr. Woods and Mr. Byrne respectively, and the "Ash Annual Prize," for the best surgical paper by a student, to Mr. Edwards. The patients' voluntary contributions amounted during the past year to £65 15s. 11d. The Committee had to regret the loss of old subscribers from death and other causes, and anxiously hoped that the useful place occupied by the hospital among the charities belonging to the city would so commend it to the philanthropic that the institution might not suffer by a diminished annual subscription list. The thanks of the Committee were due to the Committee of the Hospital Sunday Fund for their contributions, and to the medical, surgical, and dental staff for their valuable services during the past year.

The financial statement, submitted by Mr. Scott, the honorary treasurer, showed a total expenditure of £342 18s. 2d., and a debit balance of £18 8s. 5d. The receipts included annual subscriptions, £138 12s.; donations, £13 4s.; students' fees, £59 17s.; and patients' contributions, £65 15s.

The MAYOR, in moving that the report and statement of accounts be adopted, printed, and circulated, said he was quite surprised that such a useful institution should have such poor support from the general public. The total sum expended (£342) seemed to him a very small amount indeed, looking at the great good done by the institution, 15,769 patients having been treated during the year; and he hoped the public would come forward and contribute more generously to its funds.

Mr. WAITE, in seconding the motion, said he was very glad the Mayor had called attention to the remarkably small total expenditure in proportion to the large number of cases treated. When they thought of 21,000 operations being performed of the kind which were now performed at the hospital, the expenditure seemed ridiculous. The fact was that the committee had from the first exercised the strictest economy, and had rigidly avoided anything in the shape of an obligation which they did not see their way to discharge. In order to

place the hospital on a proper footing, and to provide it with all the appliances requisite for a dental surgery, an income of £500 a year was required, and he thought the institution had a very good claim on the public for that amount. Not only was a large amount of good done by it in giving relief to those suffering pain, but a good deal was done in the way of saving teeth, and they all knew how much better that was than extracting them when they were aching. There were fifteen students in the School of Dental Surgery connected with the Hospital. It was affiliated with the University, and the prospects for the future were exceedingly encouraging. He had no doubt that in the course of a few years the school would be quite equal to any in the United Kingdom.

The report was unanimously adopted, after which the usual votes of thanks were passed, and the committee, officers, and staff for the ensuing year were appointed.

Mr. MANSELL, in introducing the two students who had obtained the Quinby prizes, explained that in the autumn of 1890 Mr. Henry Quinby generously placed at the disposal of the medical staff £20 annually for five years, to be competed for by the students, the amount to be divided into two prizes of £12 and £8. After considerable deliberation the staff of the Hospital decided upon a course of examination which should be thorough and practical, and test the capabilities of the students to the utmost. Having given details of the examination, showing that it was of the most exacting and exhaustive character, he said that, as one of the examiners, he should like to bear testimony to the skill and ability displayed by the students generally, and especially to the excellent work done by the prize-winners; and when he told the meeting that these young gentlemen were both first-year men, he thought it would be agreed that they were deserving of the highest praise. He hoped that they would continue in their future life to work as well as they had done, and if they did so he thought he could safely promise them a very high position in the ranks of their profession.

The MAYOR, in presenting the prizes—in each case a microscope—said he was quite sure it only lay with the recipients for their future to be a very bright one in the profession which they had chosen; and he was quite sure, from what he had been told, that their determination was to go on in the way in which they had begun.

Mr. BIRCHALL said he was pleased to state that Mr. Woods, the winner of the first prize, was a Wallasey Grammar School pupil.

Mr. WAITE said that, in addition to the two prizes just presented, a prize was offered by Mr. Ash, of London, for the best paper on the subject of alveolar hæmorrhage. Cases of violent hæmorrhage sometimes, though fortunately rarely, followed the extraction of a tooth, and when he told them that that hæmorrhage was sometimes of a very dangerous character they would see the importance of the subject

which had to be treated. There were seven papers sent in, and, it having fallen to his lot to examine them, he was very glad to bear testimony to their general excellence. The one which took the prize excelled all others, perhaps not so much in its technical knowledge as in the clearer and more graceful style in which it was submitted. He then introduced Mr. Edwards, to whom the Mayor, with a few words of encouragement, handed the prize, consisting of a handsome cabinet.

Alderman GRINDLEY, in moving a vote of thanks to the Mayor, remarked that since his worship had occupied his high and distinguished position he had shed a lustre on the civic chair that had not been excelled by any of his predecessors.

Mr. WYNNE, who seconded the motion, said that the cheerfulness with which the Mayor placed his time and his energies at the service of the charities of the town placed all who were associated with their management under a lasting debt of gratitude to him.

The MAYOR, in reply, said it was very gratifying indeed to him to know that he was pleasing everybody in the discharge of the duties he undertook last November, and if any words he might utter with regard to any institution bore fruit he was delighted that he had had the opportunity of saying them.

The proceedings then terminated.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Edentate Jaws.

By T. SCOTT FOSTER, L.D.S.Glas., Mayor of Portsmouth.

As instances of total absence of permanent teeth are very rare, and by some are disputed altogether, an account of two such occurring in my own practice may be interesting. I may add that, as the persons are now living, there would be no difficulty in obtaining further information.

Miss S—s, aged eighteen and a-half, daughter of a chief engineer in the Royal Navy, consulted me early in 1888 in consequence of being unable to masticate her food. Upon examining her mouth I found ten temporary teeth, most of them badly decayed. (She informed me she never had any more.) They were also more or less loose. I removed them and supplied her with a set, which she now wears. Her hair is thin and generally deficient.

Mr. S—s, brother of the above named, aged twenty-one, bank clerk, consulted me in October, 1891. He had four temporary

canine teeth, never had more. I removed these and made him a set, which he is now wearing. His hair is normal in quantity, but very short, curly and black ; to the touch it is coarse and harsh, like horse hair. Both presented, about the jaws, the appearance of very old toothless people—pointed chin, sunken lips and small bones. Smell, taste and sight perfect. Average height and weight, and otherwise well developed, and of good education and intelligent. Complexions dark. The brothers and sisters of these present certain deficiencies, but in a minor degree.

Miss S—n, daughter of Captain S—n, Royal Navy, first cousin of above named, has several permanent teeth missing and her hair is deficient and thin. Her mother and Mrs. S—s, the mother of the two first named, were sisters. This is pretty good evidence that the hereditary tendency is on the mother's side, and yet the mother's teeth were normal in every respect. The grandfather on the mother's side had good teeth, and the grandmother is now living aged eighty-two.

I hear Miss S—s is about to be married, and in the event of children being born, it would be interesting and valuable to follow the case up.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Bearing of Recent Biological Researches on the Practice of Medicine and Surgery.

By G. SIMS WOODHEAD, M.D., F.R.C.P. EDIN.

DIRECTOR OF THE LABORATORIES OF THE ROYAL COLLEGES OF PHYSICIANS (LOND.) AND SURGEONS (ENG.).

(Continued from page 39.)

IT EVEN before the observations made by Beumer and Peiper it was well known that certain diseases, such as small-pox, could, when introduced into virgin soil, become excessively malignant, and it is recorded that whole tribes of North American Indians have been decimated and in some cases almost exterminated by this disease. Similarly it has been remarked that regiments that have been in certain barracks for a considerable length of time have been comparatively free from typhoid fever, although a sporadic case might occur ; as soon, however, as a new regiment has marched into the vacated barracks typhoid fever has at once broken out as a widespread and most virulent disease. In both these cases it would appear that there is some process of acclimatisation, similar to that above mentioned, in all those who are exposed to the action of certain organisms or their products for any considerable length of time ; whilst in those who for the first time come under the influence

of these agents the power of special or general resistance is paralysed, and the patient succumbs. Coats* holds that this resistance is in different races the result of hereditary influence—that is, that we must look upon the process as due to a long-continued acclimatisation through successive generations. Coats, quoting Hirsch, points out, for instance, the remarkable difference as regards susceptibility of malarial fevers between negroes and Europeans, whilst the reverse is the case as regards susceptibility to small-pox. A number of similar examples of other diseases in which the same thing is seen are also given. All these examples are held by the followers of Metchnikoff to be in favour of the theory of phagocytosis; but, as we shall find it necessary to point out, several very strong, though not perfectly conclusive, arguments have been advanced in support of the theory put forward by Buchner and others of the German school, that immunity depends more on the soluble constituents of blood-serum than on the presence of phagocytes. Buchner maintains† that the cause of recovery of an animal from an attack of an infective disease is not due to the action of phagocytosis, but to the disinfecting action of the serum, and that phagocytosis is merely the result of an attempt on the part of the organism to get rid of the devitalised micro-organisms. He admits that phagocytosis occurs only in those cases in which an effort is made on the part of the organism towards recovery—i.e., that it occurs only where a certain immunity is present, but that it occupies merely a position of secondary importance, and that it is due to the action of chemotactic proteins which are set free from bacterial cells that have been rendered inert by the action of the serum. He had previously pointed out that certain proteid bodies introduced into the circulation exerted a very great effect on the leucocytes, which became enormously increased in number. The same thing had been previously observed by Schmidt of Dorpat and his pupils, and more recently it has been further worked out in connexion with Wooldridge's tissue fibrinogen by A. E. Wright and others. Buchner also points out that Roux and Metchnikoff, both of them believers in the importance of phagocytosis in relation to immunity, differ materially as to their interpretation of the effect of the action of the "specific toxins" of micro-organisms on leucocytes, Roux holding that these products attract leucocytes, exerting a positive chemotactic action, whilst Metchnikoff regards them as negatively chemotactic or as repelling the leucocytes. In order to get over this difficulty, Buchner suggests that it may be possible that certain toxins or toxalbumens may act positively and that others act negatively, but he admits that as yet we have no proof of such different action. Some time ago it was pointed out‡ that the same irritant, toxine or antiseptic, might act in different ways, according to its concentration, or according to the period during which it was allowed to act. Lister,§ using a red-hot wire, which he gradually approached to a ciliated cell, found that when the wire came to a certain point it set up more rapid movements of the cilia, the heat acting as a stimulant by increasing the molecular activity in the cell. This was withdrawn, and again the speed of the movement

* *The Lancet*, Jan. 14th, 1888, on the Pathology of Infective and Infectious Diseases.

† Centralbl. f. Bakteriologie u. Parasitenk., Bd. x., No. 22, S. 727.

‡ Woodhead and Cartwright Wood: *Edin. Med. Journ.*, May, 1890.

§ Quoted in Chiene's Lectures on Surgery, p. 10.

fell. The hot iron was again brought near, and quickening was again produced though not to such a marked extent. It was brought nearer still, and the motion now became slower, and at last ceased. When the hot wire was suddenly brought near the stage of the microscope the ciliary movements stopped at once. Schulz,* working out the same idea from a different point of view, has been able to prove that the ferment power of yeast is distinctly increased by the addition, in sufficient dilution, of such virulent protoplasmic poisons as corrosive sublimate, arsenic, carbolic acid, and iodine; and he formulates the proposition that "every irritant exerts an action on every living cell of which the effect in relation to the cell activity is inversely proportional to its intensity." Wood and I repeated some of these experiments, and came to the conclusion that, as regards antiseptics and those protoplasmic poisons, there could be little doubt that just as in the case of sedatives, such as opium and chloroform, there is a stimulating stage through which the cells may become habituated by the continued and gradual increase of the dose to the action of the poison, so also was the stimulating or depressing action of an animal poison manifestly exhibited in cases of infectious disease. It has frequently been pointed out that when virulent anthrax is introduced into a susceptible animal no marked lesion is evident at the point of inoculation, but the animal dies rapidly of general anthrax; whilst if the same anthrax is introduced into an animal partially protected by vaccination, or into an animal that is naturally refractory, or if it be introduced in sufficiently small quantity even into a susceptible species, there is usually a local reaction with inflammation, rarely accompanied by any general disease; so that here, as in the case of an abscess, the weakened poison acts upon the normal leucocytes or the strong poison acts upon the acclimatised leucocytes as a stimulant, and not as a depressant, with the result that the organisms and the disease are distinctly localised; the toxins are destroyed or eliminated, and although the local symptoms may be severe, there is no general disease. It is evident therefore that in the one case the poison acts as a stimulant, in the other as a depressant; or, if we prefer it, the one exerts a positive, the other a negative, chemotactic action, for this is really what it amounts to.

Ruffer, in his experiments on the effect of antiseptics when introduced into the tissues in fragments of sponges, has arrived at very much the same conclusion, and he has demonstrated in a most clear and satisfactory manner the chemotactic action of dilute solutions of such substances as corrosive sublimate, turpentine, and iodine.† When dilute solutions are used, the leucocytes from the surrounding tissue pass into the sponge in considerable numbers, and we have a regular zone of deeply stained cells advancing and getting rid of the foreign substance; whilst where the stronger solutions are used the leucocytes appear to be repelled or paralysed, and only when a considerable portion of the foreign substance has been removed in solution by the action of the fluids of the body are the leucocytes able to advance. Roux and Metchnikoff also suggest‡ that leucocytes may become accustomed to the presence of considerable quantities of toxins in

* Ueber Hefe-Gifte, Pflüger's Archiv, Bd. xlii., S. 517, and Virchow's Archiv, Bd. cviii., S. 427.

† *The Lancet*, December 26th, 1891.

‡ *Annales de Pasteur*, No. viii., 1891.

those cases where there is acquired immunity, and they bring forward considerable evidence in support of their thesis. Buchner criticises their position, and points out that since in the case of vibrio metchnikovi the animals which are immune against the action of the vibrio itself still remain remarkably susceptible to the action of the toxines, unless the acclimatisation is brought about very gradually, we must suppose that the leucocytes only have acquired a tolerance of the poison. Improbable as this at first might appear, and indeed as Buchner maintains, we have a number of facts which indicate that it may actually take place, and that even after the leucocytes have become accustomed to the presence of considerable quantities of the toxines, the nutrition of other tissues in the body will be so markedly interfered with that the animal may succumb. In this connexion it was pointed out as early as 1879 by Maffucci* that the products of the tubercle bacillus, or even sterilised cultures of that organism, when introduced subcutaneously into healthy fowls or guinea-pigs, produced a condition which he termed "marasmus." Emaciation and atrophy of the liver cells and of the cells of the spleen were brought about; whilst circulatory changes of such a grave nature were set up that there was marked congestion, not only of the spleen, but also of the lungs and kidney. Anyone who has worked with anthrax bacillus or the bacillus of blue pus must have remarked the same thing, for even when an animal has come through an attack of one of these diseases it often succumbs at a comparatively late stage—say, three weeks from the time of inoculation—when the organs, especially the secretory organs, are found to be in a state of fatty degeneration. Animals made immune from anthrax are notably very easily affected by changes of temperature, and a cold wave will frequently carry off a whole series of animals thus protected; whilst in the case of the blue pus bacillus the death from marasmus at a late stage of the disease, after the active bacilli have disappeared, is looked upon as occurring almost invariably. In all these cases, then, although the leucocytes, according to Metchnikoff, or the fluid constituents of the blood according to Baumgarten, Buchner, and others, may have become more resistant to the action of toxines, and are able to destroy and eliminate bacteria, the effects on the other tissues are so marked that they have undergone distinct degenerative changes, which here also are the result of over-work through over-stimulation by a more or less concentrated poison. There can be little doubt that in these cases, as in diphtheria where fatty degeneration, as pointed out by Roux and Yersin, is of such frequent occurrence, the changes are due to the products of the micro-organisms—some holding that these products are excreted; whilst others (amongst whom may be reckoned Maffucci, Philip, Buchner, and Mitchell-Prudden and Hodenpyl) maintain that the proteins of which the micro-organisms are composed are the cause of these changes, and that they can only occur after the organism has been killed by the serum and broken down by the phagocytes. From experiments made by Cartwright, Wood, and myself I am convinced that some at any rate of these products are undoubtedly very intimately bound up with the protoplasm of the micro-organism, and can only be separated by a most careful treatment or long-continued maceration,

* Centralblatt für Allgem. Path. u. Path. Anat., Bd. i. No. 26, Dec. 15th, 1890.

† *The Lancet*, Feb. 22nd, 1890.

especially after the organism has been killed. I shall return to this question of chemotaxis.

It has recently been maintained that micro-organisms are present in all the tissues of the body, and that if a healthy animal be killed these micro-organisms will develop, multiply, and set up decomposition of the tissues in which they are present. Mr. Lawson Tait* says, "A solid mass of beef—say, a bed and silverside—is removed from a perfectly healthy ox, and is put at once into a sound and healthy pickle. The pickle is a powerful antiseptic, and if the pickle reaches the middle of that beef before the germs contained in it have had time to start their work the beef in a few days or a week or two will be fit to eat; but every housekeeper knows perfectly well that the result will depend absolutely upon the outside temperature. It would be absolutely impossible to pickle a piece of beef in August which could be easily pickled at Christmas." And then he goes on to argue that during the few hours, or maybe few minutes, that the beef is exposed to the air it does not become impregnated with germs right to the centre; but that it is more consistent with common sense to believe that the germs were in it before it left the ox, and therefore in life. I have in connexion with this matter experimented most carefully with a view of determining whether in a healthy animal micro-organisms really find their way, or remain for any length of time capable of development and multiplication in the animal tissues. I have repeated the experiments made by Chiene and Ewart, Burdon Sanderson, Ballance and Shattock, and others, and I am convinced that in a healthy animal or in a healthy human being there are no organisms to be found, except in certain cavities of the body directly continuous with the external world; and that, even in some of these cavities and passages, as Lister long ago pointed out, where the walls are in close apposition, micro-organisms cannot exist. In the urethra, for example, no organisms are found beyond the meatus urinarius externus until the patient dies. If, however, the blood of an exhausted animal, or of a patient who has just died from some disease, be examined, or if particles of the dead tissues of diseased animals be examined in the same way as tissues of the healthy animal were examined, organisms may undoubtedly be found. We must therefore assume that in these instances the barriers which under ordinary circumstances exist have been broken down, and the micro-organisms have made their way from the respiratory passage or from the alimentary canal into the circulation and so to the weakened tissues by which they are not immediately killed off. This is a point of very great importance, for we know that in cases of pyæmia, where micro-organisms are undoubtedly present in certain parts of the circulation, or in cases of abscess formation where we cannot in all cases assume that the micro-organisms are as definitely localised as is the case in pyæmic abscesses, suppuration is set up at one or more points, whilst it is entirely absent from others. We must therefore assume that organisms introduced at one point, and into comparatively healthy tissues, are killed off; whilst organisms which make their way into less resistant, unhealthy, or weakened tissues can multiply and give rise to localised suppuration. Although this is undoubtedly true, we may accept it as proved that in most instances pyogenic or pathogenic organisms have little power of maintaining their full vitality during their passage through

* *British Medical Journal*, Feb. 14th, 1891, p. 381.

the protective epithelial and lymphoid cells of the alimentary canal, say, and that in most cases, even when there is actual disease, they are so far weakened that their destruction is ensured within a comparatively short time, even by the weakened agencies (whether they be phagocytic or biotoxic) which ordinarily interfere with their advance. In the case of an incised or contused wound, where a considerable mass of tissue is devitalised and where large quantities of serous fluid, which is not constantly brought into contact with living tissues, and to which new nutrient material cannot be brought, and from which excretory products cannot be removed, we have of course all the conditions necessary for the growth of micro-organisms, a growth which will go on most luxuriantly should any seed material be allowed to find its way to this prepared soil.

As Lister used to point out, if the two surfaces of an incised wound can be brought close together after the stoppage of bleeding and the serum has ceased to escape, the wound will heal without suppuration from the fact that any micro-organisms which might make their way into the wound from outside are immediately destroyed. In those cases, however, where a large quantity of organic or inorganic material in which micro-organisms are present has been introduced into the wound, the case is different, for here a large number of organisms are partially protected by the material along with which they are introduced; they are able to obtain such foothold that they cannot be got rid of without a determined battle between them and the phagocytes, as the result of which we have what is known as suppuration.

Whatever may be held as to the ultimate mechanism of immunity there can be little doubt that suppuration is most intimately associated with phagocytosis. If we take the case of an ordinary abscess it is usually found that chains or masses of cocci are found in the lymphatics, especially those in the connective tissue; whilst in the case of pyæmic abscesses, pyogenic micro-organisms become impacted in the small vessels. In either case the result is much the same, though where the organisms make their way by the bloodvessels they occur in larger masses, the process is more acute, and the abscesses are smaller; where they are conveyed by the lymphatics the masses of micrococci are smaller, though the immediate area of distribution may be wider than when the infection is by the blood-vessels; and more extensive localised suppuration ensues.

It may, perhaps, be said that abscesses have been so frequently described that it is superfluous to give any further description; but as I wish to insist upon one or two special points I shall give a short description of what may be seen in a small septic embolic abscess—in the muscle of the heart, say. In its centre may usually be seen a section of the vessel plugged with a mass of micrococci. This, when stained with one of the aniline colours, stands out very distinctly, especially as around it there is usually a very imperfectly stained zone of somewhat homogeneous tissue, which consists of the wall of the vessel along with fragments of muscle, amongst which lie a few unstained, and therefore probably dead or degenerated, leucocytes; the fragments of muscle fibre have also lost much of their ordinary typical structure and appearance. Outside this area comes a zone of multi-nucleated leucocytes, or, if we prefer to speak of them as such, phagocytes, deeply stained, evidently in a very active state of existence; whilst here and there is a larger cell with one, or rarely two, deeply

stained nuclei, derived apparently from the fixed connective tissue cells. At the extreme margin of the abscess these fixed connective tissue cells are more numerous as they lie in this cellular mass, the muscle fibres are much degenerated, fragments of the sheath remaining, with here and there scraps of much degenerated or vacuolated granular muscular fibre. In this case there can be little doubt that the products of the micro-organisms acting on the tissues in their immediate neighbourhood have done one of two things—viz., they have lowered or destroyed the vitality of the protoplasm directly, or they have set up a kind of digestion of the muscular fibres and their tissues, a function which is usually ascribed specially to the leucocytes that are brought up at a certain period of the process; for following or accompanying this alteration in the muscles, which has resulted in such a degeneration that the nuclei within them are now imperfectly stained, there has been a further migration of leucocytes from the distended vessels in the degenerating area, which gradually make their way from the margin to the centre of the abscess, and digest and remove the degenerating tissues.

In this process a number of these leucocytes or phagocytes are destroyed and disintegrated either by over-stimulation or over-work, or possibly by the peptonising action of the micro-organisms or of the still active leucocytes; and pus cells—devitalised cells which can never return to the vessels—are formed. As the abscess increases in size more and more of the leucocytes in the centre of the abscess become disorganised; but those near the periphery are regularly reinforced, to form a barrier to the advance of the bacteria, either merely temporary or more permanent in character according to the original vitality of the tissues on the one hand, and the activity of the micro-organisms on the other; even in cases of acute abscesses, sooner or later localisation occurs almost invariably.

(To be continued.)

Swallowing Artificial Teeth.

BY R. H. ROZENZWEIG, M.B.

A SHORT while ago I saw a patient who was said to have swallowed his false teeth. The following history was given: That he had taken a nap after dinner, and suddenly woke with an intense suffocating feeling, with acute pain in the throat. Some water was swallowed, and the pain was felt "running down the chest, and ceasing somewhere about the pit of the stomach;" he surmised that he had swallowed his false teeth, for they could not be found, and he was positive they had been in their accustomed place when he had fallen asleep.

On examination, the throat was red and irritable; no laceration or bleeding; solids and liquids could be swallowed freely and without pain. A sponge probang passed easily into the stomach. The patient was put to bed, enjoined strict rest, and the ordinary diet in such cases prescribed. For the next three or four days there were severe cramp-like pains, especially over the hypogastrium; no marked tenderness, constipation alternating with diarrhoea, and the stools contained little faecal matter and much mucus. There was no tenesmus

or blood passed. A long rectal bougie failed to detect anything. About the fifth day matters improved, the bowels moved regularly, and the motions were normal in every respect, and continued so for the next six weeks.

About the third week I got word to say that the treatment had proved too monotonous, and that my patient was up and partaking freely. Shortly after this, after a long drive, he was seized with severe abdominal pains. I did not see him, however, but, five days afterwards, I was informed that the teeth with plate had passed seven weeks after having been swallowed, and that much pain had been experienced during its passage. I saw the patient some hours after, and heard that the teeth had stuck at the anus; that they had been forcibly torn out, occasioning free hæmorrhage.

Two large abscesses subsequently formed on either side of the anus. Both have since healed. The teeth were attached to a gold plate, the whole measuring, in its longest diameter $2\frac{1}{4}$ inches, in its shortest $1\frac{1}{4}$ inch, and its greatest breadth was $\frac{3}{4}$ inch.

Malmesbury, Cape of Good Hope.
—*British Medical Journal.*

WE cull the following amusing paragraph from an Indian contemporary :—

The Newest Thing in Dentistry.

THERE is a firm of dentists at Delhi—a purely local concern—which solicits patronage; and this is how it approaches the public :—

“We beg to inform to the public that we have started a business to make the ‘Artificial Teeth,’ at — opposite to the — Delhi. We therefore request to the gentlemen to visit our shop to have their teeth made which is almost as natural teeth after fitting the teeth in their mouths, they should be able to eat anything without trouble, and also they can easily remove them at any time if they wish to clean them. Especially we are very sorry to the young soldiers and to the public who has taken out their teeth willingly by Dr. Sequah at Delhi, and after taking out their teeth we are sure to believe that in the appearance they will look like an old man, and at the same time they loose their beauty. We are guarantee our ‘Artificial Teeth’ which are made by our shop, their shape, strength, and beauty of the ‘Artificial Teeth’ will never change into old or brake. And we further beg to the public that if any person would have lost their whole teeth by some other occasions and if they require complete set of teeth for both top and bottom we should be able to fix them in their mouth without any difficulties just as natural, by this fitting to an old man even not only he shall look in appearance like young man who possess with natural teeth, and also he can eat anything as he wanted, and he can enjoy the pleasure in eating as well as young men. Persons wishing to give their impression at their private residances, our assistant is ready to give at any time they may require. The specimen can be seen at the abovementioned shop between 7 a.m. and 7 p.m.”

Treatment of Pyorrhœa Alveolaris in its Early Stages.

THE first stage of periodontal inflammation due to pyorrhœa alveolaris may be relieved by using the following refrigerant :

R	Plumbi acetatis	-	-	-	3 ss.
	Tinct. opii.	-	-	-	$\frac{3}{4}$ ss.
	Water	-	-	-	$\frac{3}{4}$ vi.

M

This is to be applied with cotton. The gum should be dried, and a mat of sufficient size wet with the fluid is placed upon it and allowed to remain for half an hour. When a blister is quickly needed stronger ammonia may be used as follows :—A pellet of cotton the size of a pea or a little larger is moistened with the ammonia, placed on the gum, and a copper or lead disc placed over it to keep the ammonia in contact with the gum. Allow it to remain one half-minute, then remove, and in a few moments the blister may be punctured. Wine of opium may be used to counteract this pain if it proves too severe. Absolute alcohol and chloroform or ether may be used in the same manner. After the production of the blister anodynes are to be used as tinct. benzoin comp. cocaine in liquid vaseline, iodoform bituminized and worked up in lanolin—the aforementioned lead water and opium or black drop—vinum opii, cannabis indica, belladonna, ointment made with lanolin, chloral-camphor in lanolin. The injection of chloroform two to four minims. The local application of tinct. gelsemium or veratrine—a continuous stream of hot water or the application of mucilaginous protectives or the painting with flexile collodion.—Dr. A. W. HARLAN, *Review*.

Curious Chloroform Fatality.

A FATAL case of chloroform poisoning of a novel kind at the Middlesex Hospital was, a short time ago, the subject of inquiry by Dr. Danford Thomas. The patient was a man, aged 56, who was being operated upon for carcinoma of the upper jaw, necessitating the admission of the anæsthetic by means of the usual intra-nasal tube, Junker's apparatus being used for the purpose. The operator was surprised, at a certain stage of the operation, to see a small quantity of a clear fluid trickling through the wound, and doubtless wondered where it came from. Suddenly, however, the patient ceased breathing, and on attention being thus called to his condition, it was found that the chloroform receptacle, which usually hangs by a hook from the anæsthetist's coat, had by some mischance become tilted, so that its contents were projected into the patient's throat, causing death. This case must not of course be attributed to chloroform narcosis in the ordinary sense of the term, seeing that the fatality belongs to quite another category. It is at all times a difficult and unenviable task to administer an anæsthetic during operations on the mouth and throat ; but this unfortunate mishap is fortunately not one of the dangers inherent to the task.—*Medical Press*.

Sensory and Vaso-Motor Disturbance in Facial Paralysis.

Dr. FRANKL BOCHWART, in an investigation into the conditions present in twenty cases of facial paralysis, found that in three these were disturbances of sensation and of the vaso-motor functions, in five of sensory functions only, and in two of vaso-motor only. The sensibility was only affected in a very slight degree, and sometimes the mucous membrane on the tongue and inside the cheek was affected, and sometimes it was not. Occasionally also taste was affected. These sensory phenomena disappeared much earlier than the paralysis, but in one case in which the paralysis persisted there was diminished sensibility even after several years. The conclusion sought to be drawn from these facts is that the facial nerve in man contains some sensory and vaso-motor fibres; but of course it would first have to be shown that the fibres of the fifth nerve had not also suffered when the facial nerve became affected.—*Lancet*.

OBITUARY.

Francis Brodie Imlach, F.R.C.S.

THE *Edinburgh Medical Journal* contains an interesting account of the late Mr. F. B. Imlach, from the pen of an old and respected member of our Association. We reproduce the greater part of it, as likely to interest a large number of our readers.

Francis Brodie Imlach, F.R.C.S., one of the best known and most respected citizens of Edinburgh, whose death we briefly noticed in our last issue, took place under circumstances of a striking and melancholy nature. While on his way, about 3.30 p.m., to attend a committee meeting at Surgeons' Hall, in reference to the triple qualification of the three Scottish Surgical Corporations, he dropped down passing along the South Bridge, and appears to have almost immediately expired. He was at first removed to the Royal Infirmary, where it was found that life was already extinct.

Mr. Imlach was a native of Edinburgh, being a son of Mr. George Imlach, W.S., who died while his family were yet young, leaving four sons and one daughter to be brought up by his widow, which was done in a manner worthy of all commendation. Mr. Imlach was the third son, his eldest brother becoming a well-known medical practitioner, Dr. Henry Imlach, while the other brothers went abroad; the one holding the office of Crown Solicitor at Demerara, and the other being attached to the

Mahratta Light Horse in India. The daughter became the wife of General Douglas Campbell, Royal Engineers. Mr. Imlach leaves a family of one son and three daughters, his wife having predeceased him two years ago. For some time the subject of dyspeptic attacks, from which he suffered considerably, there were lately added to these the symptoms of angina pectoris, which manifested themselves in an increasing degree of severity during the last two years, and appear to have terminated in the distressing result we have now to record.

Mr. Imlach was educated at the High School at Edinburgh. He subsequently entered upon the study of medicine, and became licentiate of the Royal College of Surgeons in 1841, of which body he was also elected a Fellow in 1856, and afterwards occupied its chair as President with much acceptance for three years. As is well known, Mr. Imlach devoted himself to the speciality of dental surgery, in the affairs of which department he always took a lively interest, having its promotion and elevation in every way deeply at heart. His training in the technicalities of this branch had been acquired both in Edinburgh and Paris, in the latter of which cities he was resident for some time. On his return he took a leading position as a dentist, and became an intimate friend of the late Professor Sir J. W. Simpson, being one of those early associated with him at the time of the introduction of chloroform as an anæsthetic. About eighteen years ago Mr. Imlach retired from active practice, and principally devoted himself to promoting many of the charitable institutions and schemes of public benevolence with which Edinburgh abounds, while at the same time his services in many ways remained unabated in forwarding the interests of the college to which he belonged. He was a manager of the Royal Infirmary, at which he was besides a frequent visitor, taking much interest in its welfare and whatever contributed to the comfort of its inmates, whether as nurses or patients. In the Morningside Asylum, where he also had been a manager, his services were always heartily rendered. He was Chairman of Committee at the Orphan Hospital, and took a prominent place in the deliberations held on the re-distribution of its funds, and the changes proposed in the constitution and administration of this charity—his opinions being, in general, adverse to any material alterations in its old arrangements. He had for some time been on the Board of Managers of Donaldson's Hospital, and was the first appointed medical visitor on the charity known as the Dunlop Cancer

Fund. In addition to such medical appointments, the calling to which he had devoted so much of his early life had naturally developed an already artistic and mechanical turn of mind, which found a congenial sphere of action in his position for some time of President of the Royal Scottish Society of Arts. He was a member and a regular attendant of the Royal Company of Archers. He was a man of business habits, with a considerable knowledge of mercantile enterprises, and was Chairman of the Edinburgh and Bathgate Railway Company.

In all his public capacities Mr. Imlach was of a modest and retiring disposition, but his gentle and kindly manner was at the same time accompanied by an energy of purpose and a sense of probity and honour which always inspired a large amount of confidence and esteem. He inclined to look into every subject with a logical and reasoning scrutiny, which even extended to some of the present-day questions of theology. He greatly enjoyed the social amenities of life, although he always manifested that circumspection which his health—especially of late—entailed upon him ; but he was a genial and clubable man, and was a member of both the far-famed and somewhat exclusive medical clubs which form so exceptional a feature in the professional life of Edinburgh—the “Æsculapian” and the “Medico-Chirurgical ;” while he was also a member of the more open Harveian Society. In all of these his presence and companionship will for long be much missed. In closing this brief memoir of him, it can in all sincerity be said that few have left behind so little that could give offence to any of his fellow-men, or so much to be regretted among those who knew him best, in that his gentle companionship and willing services will be afforded us no more.

George Claudius Ash.

WE regret to announce that Mr. George Claudius Ash, the eldest son of the late Claudius Ash, died on the 17th of January, in the seventy-eighth year of his age, at his residence in Maida Vale, London. He had not been well for the last twelve months, but the immediate cause of death was influenza, from which he suffered only a few days.

Mr. G. C. Ash at first practised for some time as a dental surgeon, but subsequently retired from the profession to join his father in the firm which has been so long and honourably known under the title of Claudius Ash and Sons.

Modest and unassuming to an unusual extent, Mr. G. C. Ash frequently permitted others to take credit for much that was due to him—not because credit would not readily have been accorded to him, but simply because he did not care for his name to appear in print.

Many instances might be quoted to show how carefully and thoroughly Mr. G. C. Ash worked as a manufacturer—perhaps it is no exaggeration to say that we owe the present excellence of dental rubber chiefly to his experimentation—and how correct and enduring the results of his labours have been. He always pursued the truly scientific method of repeating his experiments again and again, regarding them from every point of view that he could think of, and never allowing himself to be deluded into false conclusions by enthusiasm. He was a great lover of mechanical science: his mind was ever at work on some question or other in it which interested him, and he was a frequent attendant at the lectures of the Royal Institution of Great Britain and the Society of Arts.

Charles Hunter.

We regret to record the death, on the 8th inst., at the early age of forty-five, of Mr. Charles Hunter, the author of the useful little handbook entitled "A Treatise on Mechanical Dentistry." Mr. Hunter was a native of Perthshire, and was never engaged in private practice, but occupied his time in the practical mechanical department of his profession. He travelled both on the continent and in America to gain experience and collect materials for his book, and was distinctly of a studious and retiring disposition. For some months past Mr. Hunter had been in London to be under medical treatment, but notwithstanding his delicate state of health he worked earnestly, until within a few hours of his death, at the proof sheets of a new work entitled "A Manual for the Dental Laboratory," about to be published by Bailliere Tindall and Cox. His work was barely accomplished—indeed the last sheets of his book were beside him—when the end came suddenly and unexpectedly.

MICROSCOPICAL AND LABORATORY GOSSIP.

WE have received from the editor of *Discovery* a copy of his very valuable weekly. It is as full of interesting matter as possible, and is certainly exactly the sort of paper to delight the many ingenious handicraftsmen whom our profession is very justly proud of numbering among its members.

TO REPLACE A TOOTH BROKEN FROM A BRIDGE WITHOUT REMOVING THE BRIDGE FROM THE MOUTH.—Cover the metal portion from whence tooth was broken with wax, press a suitable tooth in the wax in proper position. The pins of tooth-mark in the wax places for drilling holes in the bridge to suit pins. The holes should be counter-sunk on the buccal side. Rivet the pins with a dull point in an automatic mallet, and polish the head of the rivet. This mode of replacing a tooth is almost painless to the patient, and of little trouble to the operator. It makes a solid repair.—A. W. DAVISSON, *Items*.

TO PREPARE ABSORBENT COTTON.—Boil best quality of cotton batting in a 5 per cent. solution of caustic potash or soda for half an hour, or until the alkali has saponified all oily matter. Wash thoroughly to remove all soap, and nearly all alkali; press out excess of water, and immerse for 15 or 20 minutes in a 5 per cent. solution of chlorinated lime, wash with a little water, dip into water acidulated with hydrochloric acid, and wash thoroughly with water, pressing out excess. Boil again with a 5 per cent. alkaline solution prepared as before for fifteen or 20 minutes, wash well, dip in acidulated water, wash well, press out and dry quickly.—*Ohio Journal*.

TO MAKE STEEL INSTRUMENTS AS BRIGHT AS NEW.—Clean the instruments by scrubbing with wood ashes and soft water, to remove all rust and grease; then soak them in a weak solution of hydrochloric acid in water (about ten to fifteen drops to the fluid ounce) for a few hours, to remove the remaining dust and grease; then wash them well in pure soft water. Place them in a bath, consisting of a saturated solution of *tin chloride*, and after this allow them to remain ten to twenty-four hours, according to the coating desired. When removed wash them clean in pure water,

and dry well. If care has been taken, the steel will appear as if nickel-plated.—*Med. Brief.*

FINISHING CERVICAL MARGINS IN PROXIMAL SURFACES.—At times one meets with difficulty in satisfactorily trimming the cervical margins of fillings. The method of a writer in a contemporary (*Review*), though not new, is certainly worthy of attention. He fills the cavity about one-fourth or one-third, and then with strips and disc trims the margin; this allows great freedom, prevents the adjacent teeth being injured, and gives one a good view of what is being done. Not only is the cervical margin easily trimmed, but filling the remainder of the cavity is a great deal easier. It is needless to say that oil or any other like substance must not be used, as the cohesion of the gold will be destroyed.

TREATMENT OF DEAD TEETH.—A large amount of failure in treating teeth, the pulps of which we find dead, is through too rapidly attempting to clear the canals, and also by using our dressing with a pumping action, the result being that septic matter is forced through the apex and inflammation supervenes. To lessen this tendency clear the end of the canal first and gradually approach the apex; and again, in using medicaments on broaches, employ a rotatory and not a pumping action.

IN devitalizing a tooth pulp one should always endeavour to lessen the pain as much as possible, and this can be done in several ways, viz., by adding some local anodyne to our arsenious acid, by employing a large cap and so giving room for the nerve to swell and hence relieving the pressure, by making a large exposure and so lessening the constriction of the neck of the swollen pulp, and last, but not least, by applying some counter-irritant to the gum over the tooth, and so relieving the congestion.

WE feel sure that many of our readers will learn with regret that Dr. Joseph Walker has been the victim not only of influenza, but of a very grave complication of the prevailing epidemic, namely, acute double glaucoma; iridectomy has been successfully performed on both eyes, and the patient is making a satisfactory recovery.

FROM *Discovery* we learn that in some experiments conducted by M. Chamberland in the laboratory of M. Pasteur, essence of cinnamon has been discovered to possess great antiseptic properties, being not less effective in destroying microbes than corrosive sublimate, the scent alone in many instances effecting this.

THE same paper states that Mr. F. Phillips, of Guildford, has invented a portable dry battery which is well spoken of. After being exhausted, a few hours' rest restores it to its normal activity.

THE *Review* states that calcined magnesia is an intensifier of peroxide of hydrogen for bleaching purposes. Five parts of calcined magnesia added to H_2O_2 of the usual strength bleaches more slowly, but its capacity is very much increased, as may be seen by trying it on greasy or yellow cotton wool.

THE following is recommended by a contemporary (*Ohio Journal*) as a local anæsthetic:—R. Fl. ext. aconite, 1 part; spirits camphor, 1 part; chloroform or ether, 2 parts. Apply locally about tooth to be extracted by means of cotton pellets, and let the patient breathe rapidly and full at the same time.

ANNOTATIONS.

ANNUAL MUSEUM.—We would call our readers' attention to a notice received from the hon. sec. of the Museum Committee in connection with the forthcoming meeting at Manchester. It is intended to confine the exhibits to one branch of our science, viz., irregularities, and to make the collection as complete as possible. The notice contains a rough outline of the way it is proposed to classify the exhibits, and we feel sure that, with the co-operation of members of the Association, the Museum will prove a most valuable addition to our knowledge of the subject.

TRIGEMINAL NEURALGIA AND IODIDE OF POTASSIUM.—The following extract, which we copy from the *Dental Practitioner and Advertiser*, is interesting from its bearing upon facial neuralgia:—
“In a recent number of the *Neurologisches Centralblatt*, reference

is made to some singular facts related by Dr. Ehrmann as to the occurrence of severe facial neuralgia following the administration of even small doses of iodide of potassium. In the first case mentioned, a strong working man of thirty-five suffered most intense pain in the forehead and teeth, with sensitiveness over the whole distribution of the fifth nerve, after taking fifteen grains of the drug. A second patient, after taking fifteen grains, had much pain in the region of the upper jaw, with pain and a tenderness in separate branches of the nerve, and also oedema of the eyelids on the left side. A third and a fourth patient also suffered similar symptoms after similar doses. In all cases lachrymation and injection of the conjunctiva was present, but the symptoms rapidly vanished, and did not re-appear on a further administration of the drug. The cases are not only interesting, but important, for it is desirable to know as much as possible regarding any peculiar effects likely to be produced by a drug which is so frequently administered as an iodide of potassium."

SYNCOPE FOLLOWING INJECTION OF COCAINE. — At a recent meeting of the Société de Chirurgie, M. Berger relates an extremely interesting case of syncope following the injection of cocaine. The patient, a young soldier, for extraction of a tooth had three to five minims of a 20 per cent. solution of cocaine injected. The operation was completed without pain, and on requesting to have another stump removed, a similar injection was made, and the tooth again extracted painlessly. A sense of suffocation and loss of consciousness supervened after the second operation, these symptoms being followed by clonic convulsions, with an insensible cornea and extremely feeble pulse. The patient remained in this condition for twenty minutes, causing great anxiety, but by degrees the symptoms disappeared, and the patient quite recovered. M. Berger at the same meeting stated that Prof. Sée had collected 260 accidents following the injection of cocaine, twenty-one of which had terminated fatally.

THE obituary notice of Mr. Imlach, from which we have made copious extracts, was, we understand, contributed to the *Edinburgh Medical Journal* by Dr. John Smith, one of our Vice-presidents. The deceased gentleman seems to have been a man of many parts, and to have been able to carry himself well in many concerns of social, commercial, and scientific interest, and

we may feel justly proud to be able to claim him as a member of our profession ; but at the same time we cannot help regretting that he did not see his way to dedicating some of his abilities to the general welfare of the profession of his choice. We can see with regret what we have lost, but we can hardly estimate what we might have gained had Mr. Imlach taken an active part in the crisis through which dentistry has been, and still is, passing.

DENTAL HOSPITAL ATHLETIC CLUB.—We have been asked to state that the Annual Dinner of the above Club will take place on Saturday, March 5th, at the Holborn Restaurant. Mr. Morton Smale, the Dean of the Hospital, and an enthusiastic supporter of the Club since its foundation, will take the chair. Gentlemen either now or formerly connected with the Hospital or Medical School who may, through inadvertence, not have received special notice, and who desire to be present, are requested to communicate with the Hon. Secretaries, Dental Hospital, 40, Leicester Square.

A NEW ANÆSTHETIC.—According to the *British and Colonial Druggist*, a new anæsthetic under the name of penthal has been recently produced. It is very volatile, easily combustible, and can be administered exactly like chloroform. Anæsthesia generally supervenes from three or four minutes after the commencement of administration ; it is not deep, but suffices for small operations, such as extraction of teeth, opening abscesses, &c. Its administration is neither accompanied nor followed by any unpleasant effects.

ODONTO-CHIRURGICAL SOCIETY.—The Fourth Ordinary Meeting of the Odonto-Chirurgical Society (Session 1891-92) was held in the Rooms, 5, Lauriston Lane, Edinburgh, on Thursday, February 11th, at 7.30 p.m., the chair being occupied by G. W. Watson, L.D.S. Private business : Nominations.—The ballot was taken for the election of Charles Frederick Sutcliffe, L.D.S.I., 15, Victoria Terrace, South Shields. General business : Casual communications—"Notes on two years' use of cocaine hydro-chlorate in extraction," by Mr. H. B. Ezard, L.D.S. Mr. F. Page exhibited models of a fractured upper maxilla, and gave the history of the case.

THE Odonto-Chirurgical Society and Licentiates in Dental Surgery will hold their Annual Dinner on Friday, the 11th of March, in MacGregor's Royal Hotel, Edinburgh. Those interested in the progress of dental education should endeavour to be present on this occasion, as something may be said regarding Limited Liability Companies and their applicability to the establishment of Dental Hospitals.

GLASGOW DENTAL HOSPITAL.—The Annual Meeting in connection with the Glasgow Dental Hospital was held on February 3rd in the Religious Institution Rooms, Lord Dean of Guild Guthrie Smith presiding. Mr. D. M. Alexander, secretary, read the Committee's Seventh Annual Report, which stated that each year's operations since the institution of the hospital had shown that it met a serious public need. It had been the means of alleviating a large amount of acute suffering on the part of the poor of the city of a kind which had hitherto been absolutely neglected. Because dental disease was not attended with any fatal consequence, it did not command the same sympathy on the part of the community as other forms of disease; but the intense pain with which it was accompanied should surely make a charity like the Dental Hospital, which existed for the purpose of helping the suffering poor, an object of liberal public support. Since its institution, seven years ago, there had been treated in the hospital no fewer than 37,879 cases. During the past year the number of cases had been 4,381; of these, 3,258 had been treated by extraction, while 1,125 had been cured by preservative operations. The treasurer's statement showed that, after making provision for all outstanding accounts, there was a small balance of £8 11s. 10d. at the credit of the hospital. This result was owing to the number of students who had availed themselves of instruction at the hospital. The contributions from the public during the year had amounted to £108, while the whole expense attending the work of the hospital had been £159. It would thus be seen that a small increase of the generous friends of the hospital would secure its maintenance, and enable the directors, out of any surplus funds derived from the fees of the students, to extend its usefulness. The Chairman, in moving the adoption of the report, said the figures showed that a great deal of work had been done in the way of alleviating suffering. He expressed the hope that the hospital would receive increased support from the public. Mr.

Cameron Corbett, M.P., in seconding the motion, said he could not help feeling that the alleviation of suffering represented by the treatment of over 4,000 cases during the past year had been a very large return for the total amount spent on the institution. Office-bearers for the current year were elected, and thereafter the proceedings were brought to a close with a vote of thanks to the Chairman.

DENTAL HOSPITAL, BRIGHTON.—The Annual Meeting of this Hospital was held on January 29th under the chairmanship of Mr. O. A. Fox, who was also supported by Messrs. Harrison, C. B. Stoner, J. Wood, F. W. Carter, and Isaac Wells. The report of the Committee brought up by the Hon. Sec. was of a most encouraging character. It showed that the debt upon the Institution had been considerably reduced, and the number of persons treated had been far in excess of any former year. The total number admitted during the year amounted to 2,701, and of these over 1,000 were children. The number of extractions amounted to 2,541, and in nearly three hundred cases anæsthetics were administered, the large proportion of extractions being accounted for by neglect on the part of the patients themselves. The percentage of fillings, though necessarily small, amounted to 292, and under the head of "miscellaneous" over 600 cases were included, irregularities, and treatment of cleft palates being embodied in this class.

Mr. A. B. Stoner, Alderman and Mrs. Soper were elected Honorary Life Governors, in recognition of the great interest taken by them in the institution. The Committee also recorded their indebtedness to the various medical officers for their honorary, but valuable services, and also to the treasurer, secretary, auditor, and solicitor, all of whose valuable services are given gratuitously. The Mayor (Alderman W. Ewart) was re-elected President, whilst Messrs. T. Billing, O. A. Fox, M. Wallis, and Colonel Tester were re-appointed Vice-presidents, and Rev. Rhys Evans, Messrs. F. W. Carter, F. Sandius Smith, D. Thomas, T. Tucknott, A. Upton, and J. Wells re-elected as the Committee of Management for the current year.

LIVERPOOL DENTAL HOSPITAL STUDENTS' SOCIETY.—The Annual Meeting in connection with the above Society was held on January 17th, 1892, and was well attended, T. Mansell, Esq.,

in the chair. The Secretary read the annual report, which was of a satisfactory nature. He alluded to the marked improvement in the discussion of subjects brought forward by the students, and also stated there had been an increase in the number of casual communications. The Treasurer's report intimated that the Society had an increased balance in hand. The retiring President, Mr. Mansell, then delivered an address particularly instructive to students in reference to their future career as dental surgeons. The following gentlemen were elected officers for the ensuing year :—President, R. H. Bates, Esq., L.D.S.Eng. ; Vice-president, E. J. Phillips, Esq., L.D.S., M.R.C.S., L.R.C.P.Eng. ; Treasurer, Mr. L. J. Osborn ; Secretary, Mr. F. R. Guyler ; Council, Messrs. F. C. Dopson, P. Hope-Johnstone, and D. W. Parsons. Several casual communications were then brought forward and freely discussed by Messrs. Bates, Mansell, Alexander, Edwards, Black, Roberts, and Woods. A vote of thanks to the past officers terminated the proceedings of the meeting.

THE Annual Meeting of the Edinburgh Dental Hospital was held on the 29th of January, the Right Hon. Lord Provost Russell in the chair. A most satisfactory report was submitted by the Administrative Committee and Staff. The number of patients treated exceeded 8,000, and the per centage of these receiving conservative treatment was over 25 per cent. Owing to extension of the Royal Infirmary the Edinburgh Dental Hospital will require to vacate its present premises and look out for another habitation. The Directors propose to acquire a site and build a hospital and school worthy of the profession and the city. The profession in Scotland will be relied on to heartily support the scheme and subscribe handsomely to the Building Fund, and get their friends to do likewise.

It is proposed to convert the Edinburgh Dental Hospital and School into a Limited Liability Company. Further details concerning this somewhat startling announcement will, we understand, be laid before our readers next month ; and when this is done we are assured that we and they will wonder why the idea has never been previously adopted by any of our charitable institutions. The scheme was agreed to at an Extraordinary Meeting of Directors and Contributors held on Friday last, the 12th inst.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Absorption.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Mr. Blandy's paper on the above subject in the Journal for January contains some statements and remarks which are calculated to somewhat startle the average student of physiology, and it is in the hope that he may be induced to elaborate his theme and give us a full account of the facts and reasoning upon which he bases them, that I venture to call attention to his opinions. First, perhaps, he will kindly tell us upon what facts he founds the statement that absorption of roots of temporary teeth is caused by pressure of the advancing permanent successors, and whether he rejects the current belief that during the entire process of eruption, and until the time draws near for their appearance—the time when absorption of the temporary roots is almost completed—the permanent crowns are separated from the temporary roots by a plate of bone which entirely prevents any contact.

Next, he will, perhaps, kindly explain what he means by a permanent tooth "scooping room for itself in the temporary roots." Then I should like to know if he really means what he certainly seems to imply—that dentition is a pathological, not a physiological process. After explaining this, perhaps he will be good enough to let us know something more about the way in which he conceives a pulp or papilla may become "trapped by chewing the indiarubber ring, or the dense gum resisting eruption!" Lastly, it would be well if he would further clear up matters by making evident what he means by the "detritus" of a root undergoing absorption, and let us know the reasons—no doubt very cogent ones—which apparently have led him to discard what were until now universally accepted views concerning absorption or resorption, namely, that the tissues are removed molecule by molecule through the agency of the absorbent and blood-vascular systems—an agency which is constantly in activity in the normal processes of physiological waste and repair, as well as in many pathological conditions.

Yours faithfully,
AN OLD STUDENT.

The Higher Dental Qualification Question.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—It is satisfactory to find that Mr. G. G. Campion agrees with me in at least one matter which cannot be considered of slight importance; he agrees that this question has not yet arrived within the

range of practical politics. He furnishes further evidence of the improbability of the question ever arriving at such a stage in the fact (of which I confess my previous ignorance) that the College of Surgeons having considered the subject, found themselves unable, under their present charter and bye-laws, to institute even an examination in honours, much less to create a higher dental diploma. This would need a special Act of Parliament, and Mr. Campion must be of a sanguine temperament indeed if he fancies that such a legislative project will ever be launched. He will also, perhaps, note that an honours examination is not equivalent to a distinct degree. An examination for honours is merely a test whereby the most accomplished of the candidates for a degree may be singled out from those who merely come up to the ordinary standard. A L.D.S. in honours would still be a L.D.S. and nothing else, and the creation of such a distinction would differ *toto calo* from creation of a higher dental diploma.

This is one of the subordinate matters upon which Mr. Campion appears to have somewhat hazy notions ; and this seems rather deplorable in one so deeply impressed with the fact that "to think a little more and talk and write a little less, is still the recipe for us all."

It appears to me that Mr. Campion might well devote a little more thought to several other matters touched upon in his lengthy epistle, and unless you consider that more than enough of your valuable space has been already taken up with discussion of a thoroughly unpractical subject, I will briefly deal with these.

It is, perhaps, worth while at the outset to point out for the benefit of Mr. Campion, who seems somewhat exercised by the question, and other young writers, that contributors to a journalistic discussion have, under several circumstances, an undoubted right to conceal or veil their personality, and this right seems never more paramount than when a contribution is made up of facts and arguments. In such a case the addition of a signature may have one of two effects. If the writer be an individual of recognised authority, his name may create a bias in favour of his views ; if he be young and unknown, the disclosure of his name may have just the opposite effect ; and in any case, if a writer wishes his reasoning to be taken on its merits, he may prefer to remain undiscovered. Furthermore, there seems no obligation for disclosure if it suits the writer's pleasure, or even his whim, to remain concealed ; and I fancy it is becoming more and more a recognised custom that such a desire should be respected. In the case of our Journal I think it is eminently desirable such a custom should be established, so that those—younger men particularly—who write but little, may be led to take part more freely in the discussions of the day.

As to precedents for the proposed new degree, there are plenty of ancient ones, but none new, and the whole spirit of medical reform is

against it. There are at present between 80 and 100 distinct medical and surgical qualifications of which registration may be claimed. The thoughts of reformers are turned to limitation, if not] reduction, of these numbers, which are the source of constant inconvenience and confusion. To institute a new dental degree in addition to the L.D.S. would be to add to the confusion, and it would (I repeat) form a new precedent which might be used with great effect in promotion of similar schemes. This objection alone is a fatal one.

It is somewhat astonishing to find a writer, who is a stickler for logic and lucidity, introducing an argument such as Mr. Campion has founded on a somewhat questionable student's tale, in which a charge of stupidity or incompetence is levelled against an examiner for the L.D.S. He quite fails to explain how the existence of incompetent examiners—if such there be—affects my statement that it is impossible to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England. There is some astonishing confusion of thought here, and still more in the next passages. In these Mr. Campion expresses the view that because there are differences of opinion on some points between authorities, *therefore*, the special science pertaining to dentistry is not of extremely limited extent, and then distinctly puts it that because there are some subjects upon which more knowledge is needed, *therefore*, an exhaustive acquaintance with current dental science must be difficult. A student is not required to settle controverted points—he is only called upon to show a grasp of the opinions of such writers as have valid claim to authority; and if there are dark spots in science he is not called upon to illuminate them, but merely to know where they lie, and to estimate their significance. Scientific problems are difficult until explained, they are then comprehensible by any ordinary intelligence. What is settled in dental science is relatively very simple; what remains to be cleared up will, doubtless, when explained, be not less easy to follow and understand.

It would take much space to fully prove my contention that an exhaustive knowledge of dental science is well within the scope and powers of any industrious student of even mediocre abilities, but I think the matter may be made clear very shortly. Let anyone go over the subjects, and examine their difficulties and their extent. Next let him enquire into the amount of knowledge represented by the degrees of Bachelor of Science, Bachelor of Medicine, and Master in Surgery of the London University. Then, supposing the L.D.S. degree to have been conferred after an examination exhaustive of dental science, let him compare the amount of culture and learning which that diploma would vouch for with the amount represented by the three degrees named. I think an estimate of one to a thousand would represent something like the relative values. Well, we find a very considerable number of the leading surgeons and physicians of the day, and some

dentists, possess those three degrees, or others of the same University equal to them. If we further enquire into the endowments of these men, we may find that a proportion of them have that touch of genius which raises them head and shoulders above their fellows; but the bulk is made up of men whose intellectual endowments are merely to a greater or less degree above the level of those of the average student of medicine, and who have combined with these endowments the faculty for hard work. Now, what is the inference from all this? Surely if high class intellectual powers backed by industry are able with certainty to master and wield the comparatively enormous amount of knowledge represented by three separate degrees in general science, medicine and surgery—the most difficult of the kind to obtain in the world—mediocrity backed up by equal power of work must be well able to master the extremely limited sum of learning comprised in the special science of dentistry.

When Mr. Campion comes to work out a course of study for a higher dental qualification which he thinks it not politic at present to do he will find that he cannot introduce any subject not at present included, in the L.D.S. curriculum, and that he cannot devise a more complete test of a candidate's knowledge of dental science than is provided by the examination, if carried out to logical completeness. Let Mr. Campion try the simple experiment of composing a series of questions for a written examination for a higher dental diploma, and he will find it extremely difficult to get beyond the scope, range or depth of the class of questions which have been set for the written examination since the L.D.S. was established. To make the examination more difficult it would, as I have pointed out, be necessary to introduce more general science, or more general surgery, thus making the diploma not more dental, but more surgical or scientific.

With Mr. Campion's aspirations for the future of the profession everyone may sympathise. But those who are endeavouring to promote the advance of dentistry will surely remain more solicitous to raise the personal and professional qualifications of the average practitioner—those who form the bulk of the profession—than to give opportunities to a few men to exhibit superiority over their fellows.

I remain, sir, your obedient servant,

Jan. 19th, 1892.

S.

Mastic Bottle.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Glass capped bottles, such as Dr. J. Edwin Harris recommends, are to be had of Messrs. Townson and Mercer, in Bishopsgate Street, and no doubt of other chemical apparatus makers. I use one for Canada balsam. For some years, however, I have used

a glass spirit lamp for mastic, and have found it very satisfactory. It was recommended in a book (I think Marsh's), on mounting objects for the microscope for canada balsam.

Your obedient servant,

ANDREW ISLES SWANSON.

112, *Cheapside*.

A Graphic Romance.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—In the *Graphic* for January 16th there is given an illustration entitled "A Desert Duel"—two bull giraffes engaged in mortal combat, both using their teeth, one even trying to crush one of its antagonist's fore-foot bones.

Now from a dental point of view it seems scarcely credible (to put it mildly) that a typical ruminant, such as the giraffe, should use the mouth in combat, seeing that in the first place it has no teeth antagonising with the lower incisors and canines; and in the second, the great slenderness of the mandible at the diastema between the canines and premolars.

Wishing to see if the statements in the article could be corroborated from any work on natural history at hand, I referred to several, and in one, Cassell's, found a description of a fight between two bull giraffes said to have taken place in the London Zoo. It totally differs from that given in the *Graphic*, and being short I copy it: "Their method of fighting is very peculiar; stretching out their fore and hind legs, like a rocking-horse, they use their heads as a blacksmith would a sledge-hammer, and swinging the vertebral column in a manner calculated, one would think, to break it, they bring the full force of their horns on their antagonist's skull." In the case described the horn of the one was driven into the head of the other. This is certainly more in keeping with the anatomy of the parts, so I concluded that the article in the *Graphic* was only a graphic romance.

ANDREW WILSON.

Mr. Pearsall and the Annual Meeting. The Central Counties Branch on Dental Defence, &c.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—If in these days of general depression and gloom my previous letter served the purpose of giving Mr. Pearsall the enjoyment of a hearty laugh, it was certainly not written altogether in vain. I trust the effects of that hearty laugh may remain; or, at least, that Mr. Pearsall will agree with me that there is no occasion to introduce into the discussion of the affairs of the Association a display of any feeling but what is based upon good humour.

It is satisfactory to learn from Mr. Pearsall that the Association is, after all, not in the parlous state which his previous utterances might have led one to suppose; and so long as there exists a counsellor like Mr. Pearsall—who not only knows how everything ought to be done, but is willing generously to impart his knowledge freely to those who so sadly lack such information—things cannot fall into a desperate state. Our view of the future must be still more hopeful when we further learn that already much of Mr. Pearsall's wisdom has been absorbed and passed into action by the executive officers of the Association. So far, however, in spite of Mr. Pearsall's instruction and admonitions, conveyed in pellucid language and in a literary style so original and so free from conventionalities which trammel the ordinary writer, it is distressing to learn from him that neither the executive officers nor the members of the Association have yet acquired more than "a rudimentary knowledge of the conduct of public business." I, for one, as a mere outsider, can only hope that Mr. Pearsall will keep on pegging away until he has driven into our poor heads all the information on the subjects of which he is master, and of which he finds we so sorely stand in need. I have no mandate to speak for the Association, but for myself I can say that this course will not render Mr. Pearsall "unpopular" with me, nor, if I may express an opinion counter to his, do I believe it has had, or will have, this effect with the Association generally.

Our Association is a democratic institution and can ensure a healthy existence only when every member takes a share in its government, expressing any strong feelings freely which he may have formed and when members allow no grievance to be expressed without insistence upon full investigation, and, if necessary, reform. But even in the most democratic of institutions there must be delegation of authority; and in our Association authority is delegated to the Representative Board. If, after electing that Board, Branches of the Association take to revolting against its procedures and decisions, a situation will be created far worse than could arise from a badly conducted general meeting, even if repeated yearly, and if the disorder were as bad as the Donnybrook Fair which Mr. Pearsall pictures in his letter of January. If Branches take the course started upon by the Central Counties Branch, and pursue it much further than that Branch has gone, nothing can save our Association from disaster, nor prevent the undoing of the good work which the Association so far has been able to achieve. The grand purpose of the Association is the maintenance of the Dentists Act. This has never been for a moment lost sight of, and all possible action to the desired end has been taken. This action has been guided by the accumulated experience and wisdom of the leaders of the profession, who are not only fully master of all the facts, but have that diplomatic knowledge without which safe action is impossible. I now see from

the report of the last meeting that the Central Counties Branch are considering whether this business may not advantageously be taken out of the safe hands in which it has so far lain, and be entrusted to a new body to be created—the Dental Defence Union. One of the principal speakers showed himself in error on such an important point that one must suspect others at the meeting were similarly imperfectly informed. This member was evidently not aware that the British Medical Association was not formed for the purpose of watching over and enforcing the Medical Acts, and that such a function falls entirely outside its constitution, into which there has never been any question of introducing it.

The British Dental Association, in its scientific and political aims, and in its general constitution, bears close resemblance to the British Medical Association, but its work in watching over the Dentists Act is entirely additional and foreign to any common lines upon which the two Associations are built, and it is quite certain that if the functions which are assumed by the Medical Defence Union fell within the province of the British Medical Association, no such body as the Union would have been projected. The Board of our Association consists of a large body of men who, in my humble judgment, are truly representative of the mass of members, and if they are not so representative it is within the power of the Association to make them so. If, in the view of any Branch, the Board is acting in a lax fashion, that Branch has it in its power to press its opinions upon the Board. In the event of the Board not doing justice to such an appeal, the Branch has it in its power to appeal to the Association, and the Association has it in its power to alter the composition of the Board. This is the constitutional way of proceeding, and the only safe and expedient method.

A house divided against itself cannot stand. The Representative Board, guided and supported by the best advice from within and without the Association, has done everything which has so far fallen within its power in performance of the duties delegated to it. Is it to be supposed that a Dental Defence Union, which would be an exceedingly objectionable body to a large section of members, and would introduce division, if not bitterness, into our ranks, would show itself capable of doing anything that the combined strength of the Association might not achieve? Let the Central Counties Branch think well over this, and let them also bear in mind a most important consideration which is too often lost sight of in discussions on the penal powers of the Dentists Act. The consideration is this—that there is not one word in the Dentists Act, nor in any Medical Act, about *professional* interests. The legislation was entirely directed to safeguarding the interests of the public—to enable the public to distinguish legally qualified from unqualified practitioners, and to prevent the latter from falsely describing themselves as qualified. In these respects dentists

are much better off than doctors, and the Dentists Act, imperfect as it may appear, is much more stringent, and infinitely more easily brought to bear than the Medical Act; and for one professional parasite attached to our branch there are ten holding on to and feeding upon the general body of the medical profession.

I am, Sir, your obedient servant,

AN OBSCURE MEMBER.

January 20th, 1892.

Absorption.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Your correspondent Mr. Blandy starts his communication with a most questionable statement, viz. :—"The roots of the temporary teeth disappear by reason of the advance of the permanent teeth, though Sir John Tomes, in his 'Dental Surgery,' points out that absorption is sometimes set up independently of this pressure," and Mr. Blandy goes on to say that "we find [presumably meaning *he finds*] that the permanent tooth has scooped out room for itself in the temporary roots."

This is exactly what Sir John Tomes does *not* say, and what Mr. Charles Tomes is at great pains to disprove, by adducing arguments which may be found in the chapter on eruption of teeth in the third edition of his "Dental Anatomy."

Again, it is most distinctly laid down that "the idea that pressure of the one tooth against the other has anything to do with absorption of the first set must be absolutely rejected" (Tomes' "Dental Surgery," 3rd edition, p. 65). Mr. Blandy's physiology is pre-Hunterian. Absorption of roots of temporary teeth is a purely physiological process. What Mr. Blandy has doubtless mistaken for a healthy pulp is the papilla of odontoblastic, or more correctly, odontoclastic, cells in their fibrous matrix, whose function is the gradual absorption of the roots of temporary teeth.

The nervous elements which Mr. Blandy finds it so hard to account for are gradually eaten away, this probably being aided by the cutting off of the blood supply, "the pulp undergoing a degenerative change by which the temporary teeth are robbed of their extreme tenderness" (Tomes' "Dental Surgery," 3rd edition, p. 428). Moreover all this occurs under aseptic conditions. All these matters are also clearly summed up in Sewill's "Dental Surgery and Pathology." On the other hand, the absorption of a permanent tooth by means of pressure from another is a pathological condition.

In the case quoted it would be interesting to hear how Mr. Blandy accounts for the absorption of the palatine root of the second upper molar by means of the pressure of the wisdom tooth without some

affection of the posterior buccal root, and it may be pointed out that in these cases the crown of the wisdom tooth shows through the gum, the point of impact being at the neck of the molar tooth pressed upon. Food and *debris* lodging in the space so formed, decay speedily commences; micro-organisms obtain access to the dentine through the now faulty enamel, and the ordinary process of caries initiated. It is not very difficult here to account for the toothache occasioned, septic inflammation being set up in a previously healthy pulp. In any case it is a pathological process utterly differing in every way from absorption of roots of temporary teeth.

As to the disposal of what Mr. Blandy is pleased to call "detritus" of roots of temporary teeth, he can hardly be ignorant of the peculiar power which osteoclasts or odontoclasts possess, in common with inflammatory (granulation) tissue—that of eating into and absorbing various tissues.

In the case of a permanent tooth absorbed at some spot by impact of another, can he imagine pressure is the only factor in absorption? If it be conceived that the cavity so formed is in an aseptic condition—a condition which, as has been pointed out, does not exist—the inflammatory tissue—inflamed mucous membrane—produced would quite account for absorption.

A somewhat more extended account of the case, in which enucleation of an eyeball was called for owing to changes in it due primarily to a cavity of absorption in a tooth, would be interesting, with a view to preventing so very serious a result in the future.

I have the honour to be, Sir,

Yours very obediently,

A JUNIOR M.R.C.S. & L.R.C.P.

Nurses' Pension and Sick Fund.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I am sending per this post a copy of the *Nursing Record* containing particulars of Pension or Annuity Fund, together with a Sick Fund which, after something like eighteen months' negotiations and arrangements, we have been able to secure for trained nurses.

It is not a bolstered-up philanthropic scheme, but the calculations and the tables are formed on business-like lines, and the benefits given will be covered by the premiums, thus making it thoroughly self-supporting.

For years past 15,000, or thereabouts, of trained nurses in this country have hitherto been unsuccessful in having provided for them a Pension or Sick Fund thoroughly safe and solid, and it is with great pleasure that we have been able to conclude satisfactory arrangements with

two very important Assurance Companies, who have come to our aid in this matter.

May I ask you as an especial favour to kindly aid us through the columns of your esteemed and powerful journal to make known to the public in general, and to nurses in particular, the fact that both a Pension and a Sick Fund await their taking up and their support.

With compliments,

Yours very truly,

THE EDITOR.

*The Record Press,
11, Ludgate Hill, E.C.,
Jan. 7th, 1892.*

"The Ethics of Newspaper Proprietorship."

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The statements in the article under the above heading in your last issue are indisputable, and they teach the necessity of freeing one's mind from cant when discussing the newspaper press as a public institution. There are noble and ignoble newspapers, but as they all, without exception, are produced and conducted as money-making concerns, they are, on the whole, no more exempt from faults than other average commercial enterprises. I think it is possible to over-rate the influence and power of that vile excrescence of the day, the personal paper. These journals do not, to any large extent, find admission to the houses of that portion of the community which forms the backbone of the country, and they are little regarded by the intellectual classes. Probably the greater part of their readers consist of the class represented by loungers at the clubs, and although these individuals may amuse themselves with the scandalous gossip and the personal imputations which constitute the sole attraction of these journals, they give no credence to the statements, and throw them aside with a sneer at the impudence and blackguardism of the writers. There seems, however, too much reason to believe that the papers in question do much harm with the class of person personified by Mr. Punch under the generic term 'Arry. 'Arry is a blackguard, although by no means necessarily a criminal, and he likes to be told by the society journalist that the greater part of the higher classes are also blackguards; that royalty is mean and contemptible; judges corrupt; statesmen charlatans; and the majority of members of all professions which call for some nobility of conduct and self-sacrifice, mere humbugs and hypocrites. Impressed with such ideas, it is not difficult to see how 'Arry, from being a mere rowdy and snob, may pass into that line which lands him at length in the felon's dock. It is not likely that expostulation, ridicule, contempt, or any form of public exposure would have the least effect on the proprietors and

editors of notorious journals which are successful as money-making concerns. A literary cad, a bankrupt hanger-on to the skirts of literature, a latter-day representative of Grub Street, who, after years of impecuniosity, is realising wealth beyond the wildest dreams of his youth, as a public purveyor of scandal, is not likely to be driven from his profitable harvest by any means except force—and this is mostly the type of man who takes to the odious trade of personal journalism. There is only one weapon available against him—a weapon of which the use in this case is surely for once legitimate—a rigid boycott. No decent member of society should ever be tempted to purchase one of the papers in question. If such a thought enter his head let him recollect that by such a purchase he is helping to support in luxury a worthless rascal. Many simple readers of these papers are not fully aware of the true character of the pernicious matter which forms their sole *raison d'être*. Every number of such journals affords examples by which the ingenuous reader may be shown the foul nature of the literary ware he is patronising. By taking this course, and by exhorting with heads of families who have thoughtlessly admitted these journals to their homes among the periodical literature which in greater or less quantity finds its way now-a-days into most houses, I have myself done something towards the boycotting of these hateful productions. Perhaps these lines may induce some of your readers to do likewise.

Yours faithfully,

A JOURNALIST.

“Comparative Dental Anatomy.”

TO THE EDITOR OF THE “JOURNAL OF THE BRITISH DENTAL ASSOCIATION.”

SIR,—If your correspondent “A. W.” is not joking, he displays an uncommon amount of *naïveté* in seriously criticising the discussion from the *Cosmos* under the above heading in the Journal of January. The game of playing at mock science still goes merrily on at numerous American dental societies, and if “A. W.” has enough spare time he may find from month to month plenty of reports of papers and debates upon them out of which it is impossible to extract many sentences of intelligible language. I fancy these effusions now excite no other emotion in sensible men than what was aroused in the mind of the historical blacksmith when his wife threw her boot at his head. He merely remarked, “It pleases her and don’t hurt me.” The writings and speeches in question no doubt afford gratification to their utterers, and as they are certainly disregarded by every serious student of science, they probably do little harm, and do not materially impede the advance of true knowledge. If I were inclined to criticise, I think I should be satisfied by characterising writings such as “A. W.” cites in two words: the first is of Oriental origin; the second comes

from that side of the Atlantic whence proceeds by far the greater part of the kind of dental literature which has afforded amusement to or excited the amazement of "A. W."—the words are bosh and bunkum.

Yours faithfully,

CIS-ATLANTIC.

The Dublin Masonic Schools.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Our friend, Mr. W. Booth Pearsall, seems to me to be an Irish Hamlet, who finds everything dental on this side of the Channel out of joint, and that he alone is the one man born to set us all right, but I think he must surely just want a little setting right himself when he can advocate the continuance of that ignorant custom of waiting for pain to necessitate treatment.

I have no wish to disparage the attention which patients receive at the Dublin Dental Hospital, or any other similar institution. What I do contend for, is, that children should be inspected and cared for before necessity drives their caretakers to take them to an hospital. I should be sorry to think that Mr. W. Booth Pearsall's letters on this subject represent in any way the intelligence of the Irish Branch of the British Dental Association. I can only attribute his letters to a cavalier contrariness, from having the shortcomings of the schools pointed at from this side of the hedge.

I am, dear Sir,

Yours very truly,

136, *Nethergate, Dundee.*

W. M. FISHER.

Mr. W. Mitchell upon Personal Dental Education.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The following extract is from an article in the January number of the *International Dental Journal*, signed by Mr. W. Mitchell, who came amongst us as a stranger a few years ago, and who has been received by us as a fellow-practitioner and made sharer of such little advantages as we are able to offer to those who come amongst us legitimately. Comment is unnecessary.

Yours obediently,

J. SMITH TURNER.

"American dentists in Europe are continually having the status of American dental colleges hurled at them by the so-called professional literature of this side, and the value of their degrees questioned and ridiculed. American dental colleges, like almost all other earthly institutions, are open to improvement, and I have no doubt but their progressive superiority will be demonstrated in the future, as it has undoubtedly been in the past, continuing to furnish the

pattern that is so poorly copied on this side, and which I am sorry to say at present is more of a cheap burlesque than a worthy replica ; and while ridicule and poverty-stricken wit has taken the place of argument and logic in the European press, the fact remains that more bogus diplomas are held and more questionable means resorted to to obtain legitimate degrees by men on this side of the Atlantic than upon the other, and had it not been for the European market these diploma mills would have died a natural death.

"As an item for the consideration of those whose cheap sneer is the only compliment they have at their disposal for the dental colleges of the United States, I would propound the following question : Why is it that the best and most progressive students, after completing their course on this side and having learned all their instructors were capable of imparting to them here, seek the halls of learning in America to secure that which they were unable to obtain here, where the best obtainable is supposed to be within easy reach ?

"And why is it, if American colleges are as superficial as they are said to be, their alumni hold the positions in the European capitals they do ? I am constrained to believe we shall have to wait some time for a reply, the enforced silence of the press upon these points clearly endorsing public opinion as to the merits of the respective institutions and their representatives."

APPOINTMENTS.

T. TAYLOR GENGE, L.D.S., has been appointed Dental Surgeon to the Bristol General Hospital *vice* T. Cooke Parson, deceased.

WALTER BURT, L.D.S. Eng., has been appointed Honorary Dental Surgeon to the Weymouth Royal Hospital.

His Excellency R. C. WALLER BEY, of Cairo, has been appointed Surgeon Dentist to His Highness the Khedive, Abbas II.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

THE JOURNAL
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A
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The Birmingham Dental School.

QUEEN'S COLLEGE, Birmingham, has hitherto consisted of medical, dental, and theological faculties, governed by a Council of fourteen members. The medical and dental departments have grown so considerably during the last few years that increased accommodation has had to be considered from time to time by the Council. But it has been very evident that nothing short of absolutely new buildings fitted up with all modern requirements, would meet the necessities of the case, and fulfil the desire of the authorities—to bring the school up to the standard of the times, and worthy of the city of Birmingham. Twelve months ago a meeting with the authorities of Mason's Science College resulted in a desire for a more intimate union between the two Colleges.

Hitherto, for teaching purposes, the Colleges have been affiliated, that is to say, various subjects, such as physiology, chemistry, and botany, have been taken by Queen's

College students at Mason's College, as the magnificent laboratories of the latter establishment afforded every facility for the acquirement of a thorough knowledge of those subjects.

The Conjoint Councils almost unanimously came to the conclusion that absolute union would be beneficial to both Colleges, and after various unavoidable delays, and the compliance with legal technicalities, Justice Chitty gave an order on Saturday, February 13th, sanctioning the transfer of the medical and dental departments to Mason's College, subject to the arrangement of the details in chambers. In the meantime plans had been drawn out and estimates accepted for building new medical and dental schools, costing upwards of £13,000, and consisting of a complete anatomical department with museum, theatre and all necessary adjuncts, pathological, dental, public health, and materia medica, museums, medicine theatre dean's office, cloak rooms, lavatories, &c. There will also be erected a gymnasium for the use of the students, and the buildings will be completed, furnished, and fitted with all modern requirements by the commencement of the winter session. The improvements, from a dental standpoint, will be of incalculable benefit.

The Library of Mason's College possesses all the best modern scientific works, and the proceedings and transactions of the principal scientific societies. The chemical and metallurgical laboratories are probably as good as any in the kingdom, the name of Dr. Filden, F.R.S., as a teacher, having a world-wide reputation. In the pathological laboratories students will be taught the various modes of preparing, staining, and mounting embryonic pathological and other sections, and the uses of the various microtomes. The well-appointed zoological museum will be an immense help in the study of comparative dental anatomy,

while the geological museum, presided over by the eminent Dr. Lapworth, will afford opportunities for the study of palæontology, so intimately connected with the teeth. After the 1st of February next the Conjoint Colleges will be known as the Queen's and Mason's College.

The buildings are of an imposing structure, occupying the heart of the city, within three minutes' walk of the Midland, Great Western, and London and North Western Railway Stations.

ASSOCIATION INTELLIGENCE.

Central Counties Branch.

A GENERAL Meeting of the Central Counties Branch was held at the Birmingham Dental Hospital on Thursday, February 11th, 1892, at which, through the absence of the President, Mr. F. C. B. Carr, through illness, Mr. BREWARD NEALE was elected chairman.

The Council met at 6 o'clock, and among other business, fixed April 28th for the date of the next meeting.

The following members were present : Mr. Breward Neale, chairman ; Messrs. A. E. Donagan, B.A., J. Humphreys, F. R. Howard, F. W. Richards, C. Sims, G. F. C. Matthews, H. Hudson, F. W. Hands, W. Owen, A. Jenkins, A. T. Hilder, J. E. Parrott, Apperson, J. D. Whittles, Birmingham ; C. D. Marson, Stafford ; H. Grove, Walsall ; F. J. Thorman, Leamington ; Roff King, Shrewsbury ; J. L. Robertson, Cheltenham ; C. Hodson, Bromsgrove.

The minutes of the last meeting were confirmed, and letters of apology were read from Mr. W. R. Roberts, Lichfield ; Mr. W. E. Harding, Shrewsbury ; Mr. Hinds, Coventry ; Mr. F. H. Goffe, Birmingham.

A letter from Mr. Smith Turner, gratefully acknowledging a vote of sympathy passed at the last meeting, was read.

The donations in aid of the Benevolent Fund amounted to 18s. 8d.

Mr. JOHN HUMPHREYS then read his paper entitled "The Development of the Human Tooth ;" it was illustrated by photo-micrographs, exhibited with lime-light lantern and microscopic foetal sections. The paper appears as an Original Communication.

A hearty vote of thanks to Mr. John Humphreys was proposed by Mr. C. D. MARSON, seconded by Mr. F. W. RICHARDS, and carried unanimously. This Mr. HUMPHREYS suitably acknowledged.

Mr. HUMPHREYS also exhibited some beautifully prepared specimens of the dentitions of British fishes.

The CHAIRMAN, in accordance with a resolution carried at the last meeting, re-opened the discussion of the subject of Mr. Grove's paper, entitled "A Coach and Four through the Dentists Act," which was read on December 3rd, 1891. It was continued by Mr. H. N. Grove, Mr. Roff King, Mr. C. Sims, Mr. F. W. Richards, Mr. Palethorpe, and finally it was proposed by Mr. Breward Neale, seconded by Mr. A. E. Donagan, and resolved—"That the attention of all members be called to the increasing number of unregistered practitioners, and that they are requested to assist in their suppression by reporting all cases coming under their notice to the hon. secretaries of the Branches."

West of Scotland Branch.

A GENERAL Meeting of the above Branch was held in the Library of the Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow. The following contributions were put before the meeting and favourably criticised.

Mr. HOWARD GRAY showed a number of gas lamps for illuminating consulting rooms, the best of which was the Deimel. This lamp gives an intensely brilliant white light; it is a very clean lamp, as there is perfect combustion, consequently an entire absence of smoke and dirt. It consumes only 6 ft. per hour, and is neat in appearance.

Mr. BIGGS demonstrated Mr. Lennox's method of using fusible metal. He said he was much pleased with a few ideas suggested by Mr. Lennox, of Cambridge, at the Annual Meeting of the British Dental Association in London last August. There were few members of the West of Scotland Branch present, and he thought it would be interesting to those who were not present to see how and what Mr. Lennox did with this material. But he would first take this opportunity to urge upon the members the desirability of attending these annual meetings, and assuring them that in not doing so they often lost a good deal. He then went on to show the method of obtaining a model of a root for crown work in fusible metal; also a model for a pivot in the same—Dr. Buttner's system; also how to procure a slab articulator. Then he showed how to cast plates for trying in, and pointed out that in the same manner special trays for taking impressions could be obtained.

Mr. STIRLING showed an ether chamber made by himself. It is of very thin sheet brass, in the form of tube, or brass pipe of two different widths, seven-eighths of an inch, and two inches diameter. The body of the chamber, which holds the ether on a sponge, is made of the wide tube, and on each end of it is a piece of the narrower tube—one end to connect with the facepiece, the other with the gas bag. There is also a piece of the narrower tube connected to the chamber, about its middle, by a small brass tap. In this part the ether is placed before beginning the administration. After the patient has had a few inspira-

tions of gas, the brass tap is turned, which allows the ether to run down on to the sponge in the body of the chamber.

Mr. Stirling had tried to use ether with gas about fourteen years ago and failed, but after having been shown, some time ago, one used by Mr. Dougan, of Manchester, he tried again, and now he would not like to be without it.

Mr. Stirling had found a decided advantage in cutting the frænum of the upper lip where it interfered with the suction of an upper set of teeth. He paints the frænum with a strong solution of cocaine, then after waiting two to three minutes, lifts the lip with the fingers of the left hand, stretching the frænum, and with a pair of sharp scissors divides it with one snick. It should be cut near to the gum, keeping away from the lip. The operation causes little or no pain to the patient. The set of teeth must be finished and ready to put in, and should be worn day and night for two or three days to prevent reunion of the divided parts. Of course, before making the set of teeth, the frænum on the model should be cut all, or nearly all, away.

Southern Counties Branch.

A MEETING of the above was held at the Greyhound Hotel, Croydon, on Saturday, February 20th, but owing to the severity of the weather and the effects of the epidemic, the number of members attending was somewhat small. Those present included Mr. G. Henry, President, in the chair, and Messrs. Redman, S. L. Rymer, H. Beadnell Gill, F. J. Van der Pant, W. Barton, J. F. Colyer, W. B. Bacon, S. Hoole, T. A. Tait, F. J. Dumayne, Laurence Read, F. W. Ellwood, D. W. Amooore, G. O. Richards, J. H. Reinhardt, E. Field, Leslie Maxwell, F. Beaumont, and Morgan Hughes.

The minutes were read and duly confirmed.

The PRESIDENT (Mr. G. Henry) then said :—

GENTLEMEN,—It is with great pleasure that I am here to welcome you after a long and eventful recess, and I think we are to be congratulated that our ranks have not been thinned through the dire and still prevalent epidemic. With regard to the influenza, on recently looking through one of the Sydenham Society's volumes, entitled "*Annals of Influenza*," in which the peculiar and distinctive symptoms of eighteen or twenty appearances of the epidemic are tabulated, I was interested in noticing that amongst the symptoms of one in the year 1737 numbers were miserably tortured with toothache who had never had a bad tooth in their head, and this was accompanied with swelling of the parotid and maxillary glands. I quite hoped to have given you particulars of the case of a patient of mine, who having recently suffered from influenza, had the peculiar symptoms referred to, but an appointment

with me for yesterday morning was unfortunately cancelled through a return of bronchial trouble.

Among recent events in the dental world, Mr. Mummery's valuable and scientific researches into the development of dentine, which seem to revolutionise all past theories, and promise to have very far-reaching results, are certainly the most important.

The PRESIDENT then introduced for the inspection of members the patient, Trotman, previously seen at the annual meeting at Brighton. Mr. Hayman there exhibited a most artistic mask and useful contrivance he had made for restoring the parts lost by operation. Since then the patient had undergone further operation, and the wound now showed a wonderfully healthy surface, and the apparatus was still in good working order, and essential to the patient's comfort.

Mr. J. F. COLYER then read a paper on the "Treatment of Fractured Jaw." The paper was illustrated by diagrams or specimens of the different splints described.

Mr. HENRY, in opening the discussion, thanked Mr. Colyer for his very practical paper upon the subject. With regard to the Hammond splint, he had himself translated a paper twenty years ago written by Dr. Suersen, of Berlin, in which a very similar apparatus was described, the only difference being that in Suersen's method the splint was made of vulcanite instead of wire. Suersen also left the crowns of the teeth uncovered, and obtained the correct position of the fragments by reference to a model of the upper jaw. He (Mr. Henry) was strongly of opinion that the dental surgeon should be consulted in all cases of fracture of the jaw.

Mr. MORGAN HUGHES rose specially to thank Mr. Colyer for his great kindness in again coming to his rescue with a paper. He thought it was a great reflection upon the members of the Branch generally that he should have been so soon again obliged to trespass upon Mr. Colyer's energy and good nature. With regard to Mr. Henry's claim for Dr. Suersen's priority of invention of a Hammond splint, he would point out that Hammond invented and used his splint on the French army during the Franco-German war, and that Suersen first used his on the Germans during or after the same war. It was, therefore, probable that both men were entitled to the credit. He feared that Mr. Henry's wish that dentists should be consulted in all cases of fractured jaw was not likely to be realised for some time, at any rate in the country. His experience was that general practitioners always tried the simplest remedies first, and used the four-tailed bandages with or without a gutta percha outside splint, and if that failed would proceed to wire the fragments together. They would only invite the assistance of their dental colleagues as a last resort, when the best time for success had passed.

Mr. J. H. REDMAN described an apparatus of his own contrivance, which he had found most useful, and particularly successful in avoid-

ing the annoyance caused by the lips chafing against the wires in the Hayward splints. He believed Messrs. Ash now kept them in stock.

Mr. BEADNELL GILL asked Mr. Colyer why he preferred ether to a whiff of chloroform in those cases where the adjustment of the splint was likely to be painful. He thought ether was objectionable on account of the contraction of muscles it caused. He also described a case in which none of the splints described seemed to him to be applicable.

Several other gentlemen took part in the discussion.

Mr. COLYER, in replying, said he thought ether, when properly given, was superior to chloroform in safety, as proved by statistics, and quite free from the objection Mr. Gill had urged when the patient was properly under. He thought the case quoted by Mr. Gill, in which the upper jaw was edentulous and teeth only on one side in the lower, was a very suitable case for the use of a Gunning splint. He thought the Suersen splint was inferior to the Hammond, because vulcanite was both bulkier and less easy to keep clean than wire.

Mr. HUGHES, Mr. G. O. RICHARDS and Mr. BARTON brought forward casual communications, which led to interesting and general discussions.

The PRESIDENT called the attention of members to the proposed formation of a Museum of Irregularities in connection with the forthcoming Annual Meeting at Manchester, and said that models of such cases might be forwarded through the hon. secretary, Mr. Hughes, or direct. He also announced that the next meeting of the Branch would be held at Eastbourne on April 9th next.

About sixteen members afterwards dined together, with the result that the sum of £2 5s. 6d. was collected for the Benevolent Fund.

Midland Branch.

AN informal meeting of the members of this Branch was held on Saturday evening, February 27th, at the Midland Hotel, Bradford. The meeting was very well attended, about seventy members being present. Invitations to attend the meeting had been sent to all reputable dental practitioners in Bradford, which were fairly well responded to. Mr. A. FOTHERGILL presided.

Mr. A. B. WOLFENDEN (Halifax) read a paper on "Dental Ethics" which we print as an Original Communication. A lively discussion followed the reading of the paper.

The meeting was then thrown open for Casual Communications.

Mr. F. HARRISON showed an instrument cleverly adapted for picking up cotton wool.

Mr. LEOPOLD DRESCHFELD showed a regulation plate for bringing

in prominent incisors, in which he had adopted a principle advocated one hundred years ago, and which he found exceedingly useful.

Mr. E. J. LADMORE showed an eye-shade for the work bench.

Mr. A. A. MATTHEWS produced a pair of lower wisdom root forceps, specially designed by himself ; he also described a quick method of fixing wires to vulcanite dentures.

Mr. G. G. CAMPION appealed for regulation cases for the museum in connection with the forthcoming Annual Meeting, and showed by means of the lime-light lantern, photographs of casts of irregularities, some of which were particularly interesting, as they represented the evils resulting from the premature extraction of the six-year molar.

The PRESIDENT referred to a case of a supernumerary temporary tooth which had recently come under his notice.

The usual vote of thanks to the President brought a very successful meeting to a close.

About sixty members took tea with the Bradford members at the Midland Hotel, during which the box of the Benevolent Fund was sent round, when the sum of £5 2s. was realised.

ORIGINAL COMMUNICATIONS.

The Development of Human Teeth.*

By JOHN HUMPHREYS, L.D.S., F.L.S.

GENTLEMEN,—It savours almost of presumption to attempt a paper upon a subject which has been so ably and exhaustively treated by Mr. Charles Tomes in his work upon "Dental Anatomy and Physiology."

There have been many investigators in the field during the last ten years, but comparatively little knowledge has been added. The principal result has been to confirm all along the line the great truths of dental development laid down by Sir John and Mr. Charles Tomes. From my own experience I can bear testimony to the correctness of their premises regarding the human foetal tooth, an examination of a great number of embryological sections of the jaws serving only to demonstrate the facts which they have so faithfully elaborated. In other words, my paper this evening will be to set before you in detail, facts which we have all learnt in our student days, and it is only in the hope that many

* Paper read at a meeting of the Central Counties Branch at Birmingham, February 11th, 1892.

busy practitioners here, whose lives are too much occupied to devote time to elucidate the mysteries of tooth development, may yet be inclined to have their memories refreshed, and may be interested, in studying the microscopic sections and the lantern slides. Indeed the use of celloidin has given such a stimulus to microscopic research, and the application of micro-photography has been so thoroughly developed, that a subject which was once studied by a few specialists, is fast becoming the scientific hobby of the many, as is evidenced by the greater prominence given to the subject in our annual gatherings.

How to describe a human tooth is by no means an easy matter, and it is only by regarding man as the highest of the mammalia, that we can arrive at a just conclusion. Now if we go backwards, and examine some of the oldest forms of fish life which appeared in ancient geological time, we shall find the first traces of creatures possessing teeth in the class of fish termed Palæichthyes. Fortunately at the present day we have remaining a few varieties of a once-important group, and by studying the teeth of the sharks, rays, and dogfish we shall gain considerable information upon the subject. Tomes tells us that in the young dogfish there is no lip in the lower jaw, but the skin which covers the surface of the body is continued over the rounded surface of the jaw—in fact, at an early age there is no break in its continuity. The skin is densely covered with dermal spines, sharp pointed in the lower jaw, and rounded in the upper; those in the lower, both in structure and shape, closely resembling the teeth which cover the surface of the rounded jaw, and to which they are only attached by a dense fibrous gum. It would be difficult, in fact, to demonstrate where the dermal spines ended, and the teeth commenced. That they are identical in structure may be easily demonstrated by examining a section of the spines of a thorn-back ray, which are found to be constituted of a substance similar to dentine. We are, therefore, compelled to admit that the dermal spines and epithelial teeth of the dogfish are identical in their origin, and this fact will enable us to more easily comprehend the development of mammalian teeth.

Teeth are essentially epithelial structures, for in all creatures—whether fish, reptiles, or mammals—teeth are produced from the epithelial layers. About the twentieth day of foetal life buds are given off from the first visceral arch for the formation of the upper and lower jaws, two lower growing together until they meet in the

centre, forming a continuous band which becomes the rudimentary lower jaw, and two upper, which grow together, and are met by a double downward sprouting, forming the intermaxillary bone, which coalesces with the maxillary buds, forming together the upper jaw.

At the end of the first month the embryonic jaws are formed of a cord of a dense cartilage—Meckel's cartilage—which serves as a scaffolding upon and around which an osseous shell is formed, and at the end of the sixth month of foetal life Meckel's cartilage entirely disappears, having fulfilled its purpose as a temporary platform.

At the fortieth day Meckel's cartilage, forming the rudimentary jaw, is embedded in a mass of embryonic tissue, but immediately afterwards a proliferation of epithelial cells takes place in a downward direction, but extending all round the jaw, described by some authors as the dental cord, and from the inner sides a further proliferation of cells takes place, in form like a rounded gland in the position of the future teeth, and these are the first appearance of the tooth germs.

Now, in examining the first figure we shall see the constitution of the infant enamel organ. Above are the rounded cells of the oral epithelium, the lower ones being longer and more specialised, forming a layer known as the "Rete Malpighi." The tubular inflection is a continuation of the cells of the Malpighian layer, which are columnar in shape, especially so towards the base.

The next illustration will exhibit a further development, but the enamel organ has broadened and flattened at the base, as if it had come in contact with something which prevented its further progress downwards. In the third figure the reason is apparent, for the flattened base is further bulged in, as it were, the two ends, or cornua, only developing downward and encircling a rounded aggregation of cells of a denser structure, the primitive dentine germ, which has originated from the submucous tissue. In this sketch we see very clearly the double origin of the tooth, the enamel organ originating from the oral epithelium, and descending until it meets and covers the dentine germ which has arisen from the submucous tissue.

At this early period the dentine germ consists of a mass of embryonic connective tissue, apparently consisting of large nuclei embedded in protoplasm, but without presenting any true cellular structure, a section at this time appearing darker and denser than

the enamel organ, owing to the aggregation of the nucleated tissue.

Returning to the enamel organ, we notice that the peripheral cells are a continuation of the Rete Malpighi, being columnar in shape, more especially at the base, where they are longer and more prismatic, with nuclei at the ends farthest from the dentine germ. They are known as the internal epithelial cells of the enamel organ, while the outer are designated external epithelium of the enamel organ. The centre is occupied by a mass of stellate cells with large nuclei, termed enamel pulps or enamel jellies, whose function is not well known, Tomes declaring them simply to be needful to fill up the centre of the enamel organ, while some writers believe that their office is to store up the lime salts necessary for the calcification of the enamel.

On the inner surface of the cells of the internal epithelium is a layer of younger and more rounded cells—the cells of the stratum intermedium—which are supposed to directly nourish and enrich the enamel.

At this stage we shall notice that a change has taken place in the dentine germ; it has assumed a more definite shape, the cells upon its summit opposite the enamel organ becoming differentiated into a distinct layer of elongated cells with large nuclei, designated *odontoblasts*; they lie closely packed together. From the base of the dentine germ, rising upwards and partially encircling the enamel organ, may be discerned the first appearance of the dental sac or follicle, which, at a later period, will envelop the tooth germ. It is very evident, then, that the tooth germ has a double origin, and that the enamel organ and dentine germ develop separately, that there is no intimate union between them, but only that both approximate closely, and as we shall see, later on, calcify simultaneously, the one adapting itself to the configuration of the other. That the approximation is very intimate is demonstrated by the fact that occasionally dentinal tubes enter the enamel in human teeth, but this is extremely rare, though in marsupials it is characteristic and always present. Such could only have occurred by the squeezing of the soft odontoblast cells between the enamel cells when in a plastic state, before the deposition of lime salts. The two cornua of the dental sac have, in the meantime, risen to the summit of the enamel organ, and encircled it, cutting off its connection with the Stratum Malpighi.

We soon notice a considerable change in the appearance of the enamel organ, for the cells of the external epithelium rapidly disappear, or become atrophied; the stellate reticulum becomes more limited, but the cells of the internal epithelium, which line the base of the organ, elongate in a columnar fashion, their nuclei being continually pushed upwards. These constitute the true enamel cells or ameloblasts, and are directly engaged in forming enamel.

Now as to the formation of the enamel, various theories have existed as to the calcification of a tooth, one being that the lime salts were excreted from the cells, and another, that the cells were calcified by actual conversion, which can be very readily demonstrated. The enamel cells in their infant state are supposed to be long rounded cells but open at both ends, probably filled with soft plasm.

Lime salts are first deposited upon the ends and periphery of the cells, which are first hardened, successive deposits gradually filling up the cell much in the same way that a tea kettle is filled up with lime deposits from hard water. The axial portion is always the last to calcify, as may be observed by treating fully formed enamel with acid, when the centre of the cells is first dissolved. As calcification proceeds, the cells continue to elongate, being recruited through the cells of the stratum intermedium from the vascular supply of the dental sac.

If during this period a portion of the developing enamel be fractured, and single cells isolated, it will be noticed that they have a somewhat singular shape, being rounded the greater part of their length, but the ends next to the formed enamel are square, with long and narrow prolongations from the centre.

This is explained by the fact that the cell has been fractured across the line of calcification, and consequently the lower end, being impregnated with lime salts, is stiffened, and maintains the rigidity of its outline, whereas the other portion of the cell, not being hardened, collapses somewhat, presenting a rounded, contracted appearance. The prolongation from the trumpet-mouthed end is the soft uncalcified axial portion withdrawn from the centre of the ameloblast cell termed Tomes' process.

Depositions of calcific matter proceeds continuously, until at last the organic matrix is almost obliterated, being represented in adult enamel by only 4 per cent., 96 per cent. being hardening salts of phosphate, fluoride, and carbonate of calcium, and phosphate of magnesium.

The cells, by mutual apposition, become also hexagonal in shape, with no intervening matrix, though some anatomists maintain that the prisms are united by a dense network of fine fibres, which permeate the whole of the substance of the enamel.

That enamel is nourished after the eruption of a tooth is patent to all, by comparing the soft enamel of a child with that of an adult, but the method by which the calcific material is conveyed is at present a mystery, especially when it is remembered that the ends of the enamel cells next to the dentine are first sealed by calcification.

Though the enamel organ has been first described, yet, as a matter of fact, calcification first commences in the dentine germ. I have hitherto mentioned that, simultaneously with the lengthening of the cells of the internal epithelium of the enamel organ, a similar change is being effected upon the surface of the dentine germ, where a layer of cells is in course of formation, lying closely packed together, with large nuclei. These are the odontoblast cells, which bear the same relation to dentine as the ameloblasts do to enamel.

The layer is designated *Membrana Eboris*, the ivory-forming layer. At first they consist of nuclei embedded in protoplasm, but afterwards distinct cellular forms may be observed, more especially when calcification has commenced. The cells are somewhat oval or oblong, giving off various processes. As many as six or eight have been observed in isolated forms, and they are known as pulp, lateral, and dentinal.

By means of these processes the odontoblasts anastomose with one another, the pulp processes communicate with the deeper cells of the pulp, from which they derive their supply of hardening salts, and the dentinal processes communicate with the forming dentine.

Now with regard to the method of calcification of the dentine, it is effected in a somewhat similar manner to the formation of enamel. Calcific material is first deposited upon the end of the cells *next* to the enamel and the periphery, the axial portion being the last hardened.

If developing dentine be torn by needles and microscopically examined, it will be found that similar elongated processes will be found hanging from the centre of the ruptured odontoblast cells, and which are recognised as *Tomes' fibrils*. These are the soft uncalcified axial portions which have been drawn from the formed

dentine, consisting of a jelly-like plasm. As calcification continues to progress, the odontoblasts are pushed farther and farther towards the centre of the pulp chamber, until, as we know, in old age almost the entire pulp is obliterated by the invading lime salts.

Dentine fully formed is seen to consist of a number of tubes embedded in a matrix, the tubes being occupied by the soft fibrils. The linings of the tubes or sheaths of Neumann are singularly indestructible. Subjecting them to the action of acids, or putrefaction has no effect upon them, and this singular property of resistance to decay enables us definitely to ascertain the dentinal structure of teeth probably millions of years old. They appear to be formed of a gelatinous substance just upon the border land of calcification, and this may be demonstrated artificially by mixing with albumen or mucilage a slowly precipitating lime salt; curious laminated bodies resembling minute onions result, which afterwards blend together in a laminated mass. These bodies are termed calcospherites, and if these be treated with strong acids or alkalies, or even boiling water, they never again give up all their lime salts, and the resulting substance in every respect resembles the linings of the dentinal tubes and the linings of the Haversian canals, to which the term calco-globulin has been given. No nerve ending has ever been seen to enter the dentinal tubes, and its exquisite sensitiveness is due to the soft plasm which occupies the centre of the tubes. That this is so we all well recognise when we recollect how much more sensitive dentine is in a child than in an adult—due to the greater calcification in the teeth of the latter; and again, teeth which are so sensitive as almost to defy touch, yield to the application of the rubber-dam and the desiccation of the hot air syringe.

We must not forget that though nerve terminations have never been seen to enter the dentine, yet the pulp processes of the odontoblasts extend deeply into the cells of the pulp, where a rich plexus is formed by the breaking up of the nerves and blood vessels which nourish the pulp. Hitherto we have treated of the development of enamel and dentine, the principal constituents of the human tooth, but a third remains to be described—the cementum.

We have noticed how upgrowths from the base of the dentine germ gradually encircled the growing tooth, uniting at the summit, and forming the dental sac, from which the enamel was subsequently nourished. Its future history may be briefly told. The upper portion in contact with the enamel becomes converted into

a thin, indestructible, structureless membrane known as Nasmyth's membrane, which can be demonstrated on any freshly-erupted tooth. It is a modified form of cementum, as occasionally, where it dips deeply into pits or crevices in the enamel, lacunæ and canaliculi may be seen. The lower portion forms the alveolar dental periosteum, which not only subsequently nourishes the cementum, but really forms it.

We have seen that the crown is the first formed portion of the tooth, the roots being gradually formed from a deposition of dentine, which becomes covered externally with cementum, a substance closely resembling bone in structure. The alveolar dental periosteum closely invests the growing roots, and its inner surface is covered with rounded cells, designated osteoblasts, or osteal bone-forming cells; in fact, they are present wherever bone is in process of formation. These calcify in a similar manner to the odontoblasts; that is, each cell calcifies from without inwards, though the inner or nuclear portion often remains as the bone corpuscle. The coalescence of these cells results in the laminated appearance seen in cementum, the lacunæ containing the uncalcified bone corpuscles.

About the sixteenth week of foetal life buds are given off from the necks of the enamel organs, immediately below the Malpighian layer, which descend into the submucous tissue, forming the enamel organs for the twenty anterior permanent teeth. But from the neck of the enamel organ of the second temporary molar two buds are given off—the anterior for the second bicuspid, and the posterior for the six-year-old molar, which will subsequently, at about three months after birth, give off the germ for the second molar, and about the third year the wisdom germ will be thrown off from the second molar.

So far we have traced the tooth from the first inflection of the oral epithelium to the formation of the three constituent portions of which it is built up. By examining the section of a fully developed tooth we shall see the further changes which have occurred. Firstly, as regards the enamel. Human enamel, fully formed, is exceedingly dense, with a wavy appearance in section, showing that the prisms are not straight. This sinuous appearance is more frequently found in the enamel covering the crowns of the teeth, and, in fact, is characteristic of such enamel. It is found to consist of hexagonal prisms, in mutual apposition. Various markings parallel with the outer surface, somewhat resembling strata in a

geological section, are termed the brown stria of Retzius, from the brown appearance indicated under the microscope; they are evidently marks of intermittent calcification. Enamel is thickest on the crown, more especially in the region of the cusps, and thinnest towards the neck, where it is covered by a thin film of cementum.

The dentine gives the form, and constitutes the greatest bulk of the tooth, and a section demonstrates the fact that the tubes of which it is composed pursue an undulating course from the pulp-chamber to the outer surface; this is more especially the case in the crown. The dentinal tubes are really supposed to pursue a spiral course, only a portion of the spiral in the shape of various curvatures being apparent in a section.

Besides these primary curvatures the dentinal tubes in the roots give off a great number of branches before terminating at the surface of the tooth, which are known as secondary curvatures, and which anastomose freely with one another. Between the dentine and cementum a number of interglobular spaces exist, in which the terminations of the dentinal tubes are lost; these are known as the granular layer of dentine. Cementum thickly clothes the roots of the teeth, having a laminated structure, permeated by a network of lacunæ and canaliculi, which freely anastomose. The lacunæ are occupied during life by bone corpuscles giving off processes which communicate by their processes with other lacunæ, and thus a living plasm permeates and nourishes the whole of the cementum.

And now a few words with regard to the nourishment of the tooth. The pulp derives its vascular and nervous supply from nerves and vessels entering the foramen at the base, and breaking up into a rich plexus immediately beneath the *Membrana Eboris*. A second source is by means of the alveolar dental periosteum, which closely invests the cementum, conveying nourishment by means of the lacunæ and canaliculi. Thus a living chain of cells exists by means of the odontoblasts communicating with the dentinal tubes, which terminate in the interglobular spaces, filled with plasm, which again communicate with the cemental lacunæ nourished from the periosteum.

PLATE I.

FIG. 1.

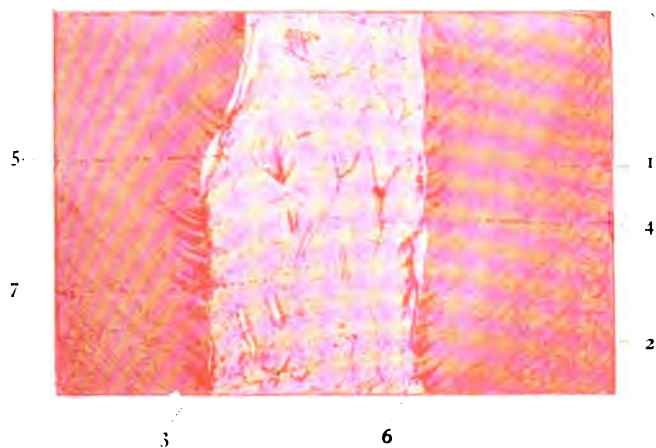


FIG. 2.

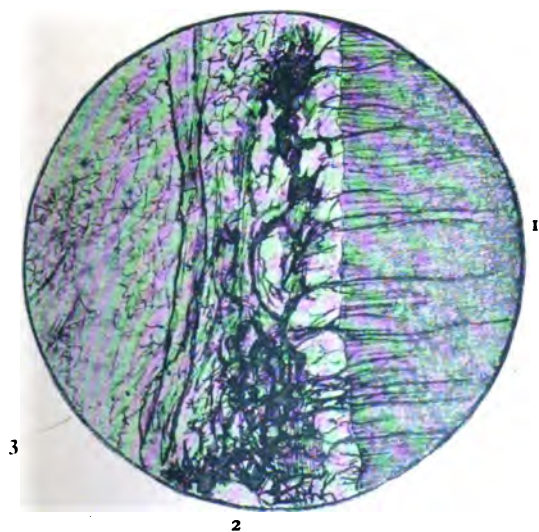




PLATE II.

FIG. 3.

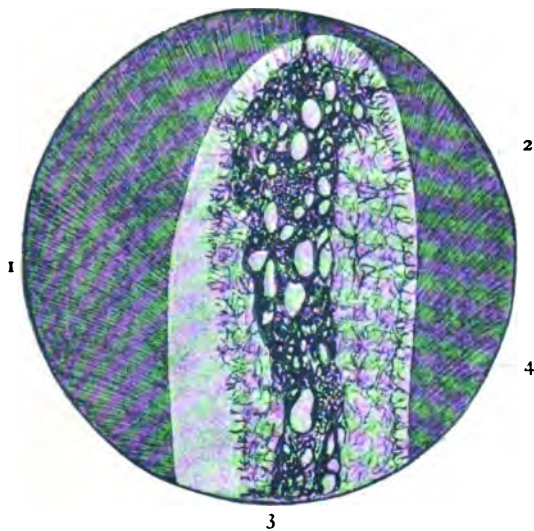
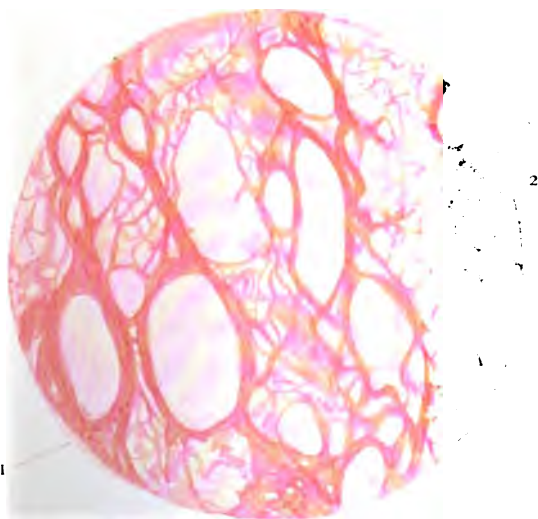
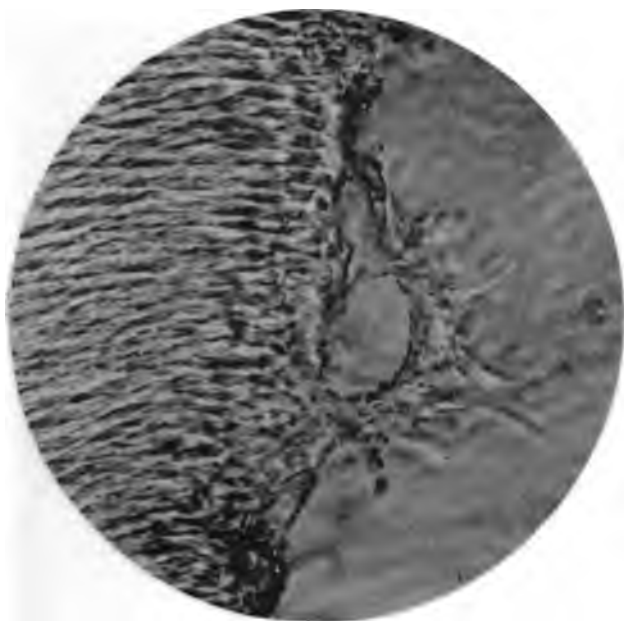
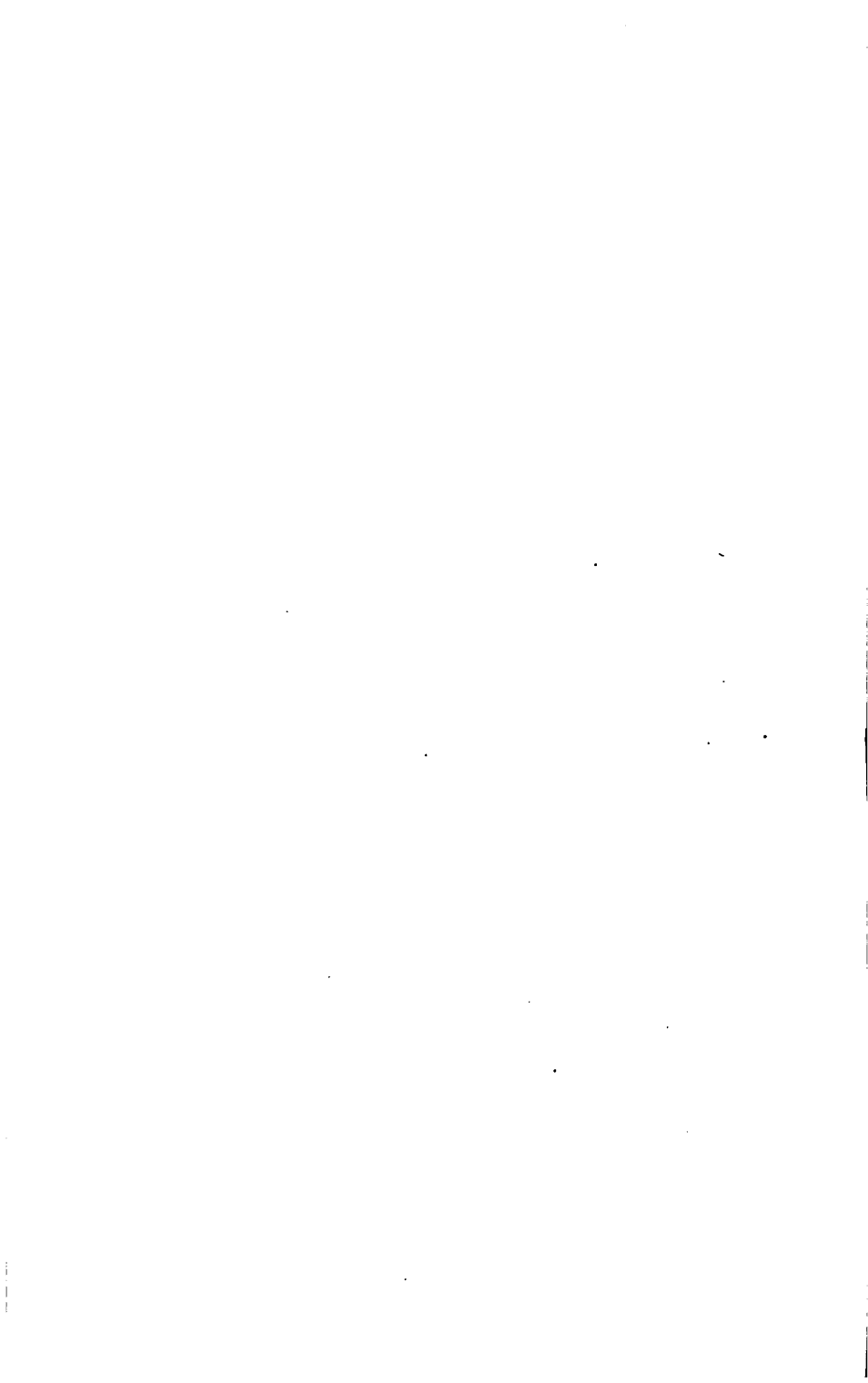


FIG. 4.









Some Points on the Patho-Histology of the Dental Pulp.—Fibroïd Degeneration.

By A. HOPEWELL SMITH, M.R.C.S., L.R.C.P., L.D.S.

WHILST recently studying the histology of the dental pulp in its normal relationship to dentine, and preparing sections of human teeth with this object in view, the writer found among his sections some excellent and remarkable examples of fibrosis or fibroïd degeneration. The typical appearances presented on microscopic examination of these specimens warranted more than a passing notice: and as they were further investigated, they became more and more interesting, sufficiently justifying an accurate description and a careful account being placed on record. Hence this paper.

Later it will be clearly shown that the term "fibrosis" is the only one which can with certainty be applied to this particular form under notice. That it is a specimen of degeneration there is no doubt, and it is equally easy to eliminate those other degenerative varieties—such as mucous, calcareous or fatty, which animal tissues may undergo.

Speaking of degeneration of the dental pulp Sir John Tomes says: "The arteries and veins become indistinguishable and their coats are kept rigid and distended by irregular calcareous depositions upon them. Thrombosis of the vessels occurs and the clots often disorganise, so that crystals of cholesterine are found in them. The nerve trunks at the same time undergo fatty degeneration, and the odontoblast layer loses its distinctive characters" ("Dental Surgery:" Disease of Pulp).

But this would not seem always to be the case. The present instance affords an opportunity of examining certain structural metamorphoses in the pulp which are believed not to be dependent on any inflammatory condition, but simply attendant on and produced by senile constitutional changes. Further investigations will go to prove that it is a natural old-age termination of the life of a healthy pulp.

This affection seems to have been unknown to, or overlooked by the dental pathologists of the Continent and America, for though Arkövy, Magitot, Rothman in Europe, and Black in America, publish minute descriptions of the patho-histology of the dental pulp and periosteum, and elaborate dissertations on ulcers and tumours connected therewith, in no case does one find an account of the senile variations in the tissues of a tooth. Black, in the

"American System of Dental Surgery," figures and describes an areolation of the pulp, which at first sight resembles fibrification of that tissue, but differs very materially from it in the fact that numerous cells and nuclei are present in the sections from which he draws his conclusions. He writes:—"Areolæ develop in the matrix, and all the histological characters of the tissues are profoundly changed. These areolæ were evidently filled with fluid; hence a kind of oedema of the organ must have existed, which, in the enclosed pulp-chamber, has probably gradually destroyed the cellular elements, and new elements thrown out in the inflammatory process, have suffered the same fate." (Vol. i., p. 859.) This is not so here.

Sewill also mentions fatty and calcareous degenerations of the pulp, but does not refer to fibrification of that structure ("Dental Surgery," p. 239).

Of the pathology and clinical history of the tooth, the histology of which is presently to be described, little can be said. The account of its patho-histology will, it is hoped, be interesting and instructive. The tooth from which the sections were taken was an upper canine, apparently sound, but useless, inasmuch as it had been loosened by the gradual absorption of its alveolar socket, which had left the portion below the neck exposed. As a result, there had occurred that peculiar periostitic pain, or something analogous, so often noticed in elderly patients with shrunken alveoli; and the canine was extracted. It was of a dark yellow colour, and presented, in addition, all the appearances of an aged tooth.

After having been treated by the new method of preparation advocated by the writer, about 20-25 longitudinal and transverse sections, suitable for microscopic examinations, were obtained. The revelations afforded by these sections, are of a particularly interesting nature.

It is evident that in complete pulpar fibrosis no cellular elements of any description whatever occur. This is clear at once, and is an important fact. No trace of cellular organisation, no vestige of cell nuclei, no remains of interstitial cement substance, can be found anywhere. Nerves, cells, blood-vessels, odontoblasts, have alike shared the process of fibrification, and are no longer recognisable, and the connective tissue, which is but a loose mass of network in the normal state, has either become grossly hyperplastic, or quite obliterated, and its place taken by a new, firm fibrous

structure, devoid of cells, nuclei, or any regular arrangement of constituent parts.

In a longitudinal section which is viewed under low magnification, the appearances much resemble pulmonary tissues, minus cells. The pulp seems to consist of retiform connective tissue, containing large alveolar spaces, with here and there long cylindrical cavities, all having extremely thin walls. Several of these tubes are shown in fig. 1, they are probably the fibrous remains of what were once blood vessels. The dentinal surface of the pulp is occupied by a more highly defined appearance. Rows of long thick fibres, of various shapes and sizes, some bifurcated, others plain, and again some possessing fibrous offshoots, are here distinctly seen, attached to, and in places detached from the dentine. In those situations where the fibres adhere, curious dark markings, extending in the direction of the lines of the tubules, are visible in the dentine; they are, without doubt, due to the retention, *in situ*, of the dentinal fibrils, which give to them a different refractive index to that of the empty tubes. These are well demonstrated in the photo-micrographs from which figs. 1 and 2 are taken. The row of fibres represent, what were once odontoblasts. This is proved by the following points:—(1) They distinctly occur at the edge of the pulp, in the site occupied normally by the *membrana eboris*; (2) They are continued into the tubules of the dentine, in a similar manner to that of the processes of the odontoblasts; (3) At the coronal position of the pulp, the fibres are larger, stronger, more marked, and less numerous than elsewhere; and (4) Their method of attachment to the main parts of the pulp closely approximates to that which obtains in the normal odontoblasts. Hence it is that these fibres, with their marked outlines, are degenerate and fibroid odontoblasts, but so altered in shape and size as to appear to be merely bundles of connective tissue, which penetrate the dentine to a variable extent.

On examining the transverse sections, several curious formations are noted. First, it is observed that there has been considerable fibroid shrinkage of the pulp, and separation from one side of the pulp cavity. It is perfectly obvious, that this shrinkage has not been caused by the mode of preparation to which the tooth was subjected; it is a natural and fibroid contraction of the pulp, produced by a gradual knitting-together of the fibrous tissues, which have become on one side detached entirely from the hard dentinal

wall, in consequence of the unyielding nature of the latter. A large well-marked chain of areolar spaces is, however, the most striking object here observed (fig. 3). It stretches without break, across the pulp chamber from side to side, and consists of groups of more or less circular empty spaces, bound together thickly by fibrous tissue. The vacuoles vary greatly in size: the largest measures about 220μ in its greatest length, and 160μ in its greatest width, whilst the smallest here seen (fig. 3), which is also almost circular in shape, measures from $5-10\mu$ in diameter. At first sight these appear to be blood vessels cut transversely, but such is not so, as they do not possess their distinctively characteristic walls. They are, therefore, simply long cylinders with thin but tenacious boundaries. No attempts at calcification can be distinguished in them anywhere; the stroma in which they are held is very dense, has a clear fibrous structure, becomes very marked in staining, and consequently is highly differentiated from the surrounding tissue (fig. 4).

It is impossible to say what agencies have brought about this condition, or to try to explain the immediate cause of these peculiar areolations.

Degenerate odontoblasts are again clearly visible on the edge of the pulp.

It is worthy of note that the lamina of the dentinal tubules are in no way narrowed or occluded by any adventitious varieties of calcification.

It must not be imagined that these conditions are to be demonstrated in every aged tooth. Secondary dentine nodules, atrophy, total disorganisation, and a number of other pathological states may be and are often met with: there must be many aberrations from the type here considered. But, given a tooth which has been healthily preserved, through all the vicissitudes of its life, unattacked by extrinsic, and unexposed to intrinsic, influences, it would seem that the above results are one form of the natural and usual termination of the life-history of the dental pulp.

EXPLANATION OF ILLUSTRATIONS.

PLATE I.—FIG. 1.

Longitudinal section, though cervical portion of canine, shows fibroid degeneration of pulp, mag. 12 diam. (1) Dentine; (2) pulp, *in situ*; (3) circular areolar spaces cut longitudinally; (4) strands of fibrous tissue; (5) degenerate odontoblasts; (6) markings in dentine where odontoblasts adhere; (7) retiform fibrous tissue.

FIG. 2.

Small portion of above section more highly magnified, mag. 200 diam. (1) dentine; (2) odontoblasts that have undergone fibroid changes; (3) large areolar space.

PLATE II.—FIG. 3.

Transverse section of canine, shows fibroid changes in the pulp, mag. 40. (1) dentine; (2) pulp *in situ*; (3) central chain of large circular areolar spaces; (4) degenerate odontoblasts.

FIG. 4.

Portion of above more highly magnified, mag. 200. (1) areolar spaces; (2) retiform fibrous tissue of pulp.

Dental Ethics.*

BY A. B. WOLFENDEN, L.D.S.I.

MR. PRESIDENT AND GENTLEMEN,—When our esteemed secretary invited me to read a paper at this meeting, he, at the same time, was good enough to furnish me with a subject; though at the outset I confess my inability to do it justice.

It is not my intention to enter into any particular kind of conduct which we as dental surgeons should endeavour to attain, but under the title of Dental Ethics may be mentioned any kind of practice either 'professional or unprofessional carried on by dentists.

It has been said that the Mechanical Branch is the backbone of our calling; the time is fast drawing nigh when one branch of our work ought to be as remunerative as the other. Does not the treating of an aching tooth, destroying the pulp, with all the careful and delicate manipulation required to successfully effect our purpose, deserve to be paid for as well as many other operations in surgery? How often are we consulted regarding the irregularity of children's teeth, and find neither mechanical or surgical interference required—that time and nature will be the best operators—and how delighted is the parent or guardian that nothing needs to be done. After taking up our time, and receiving our advice, they will depart and wish us a pleasant good day, and forget to ask if there is a consultation fee.

Patients frequently bring two or three friends with them when

* Read at a meeting of the Midland Branch, held at Bradford, February 27, 1892.

they come to visit us, who often prove a nuisance to the operator, especially during the administering of anæsthetics. If we were to insist that the relatives and friends of our clients should leave the operating room before we begin, it would often be an advantage to all concerned; for the quiet slipping out of the room just when we have commenced is annoying, whilst it may be that the behaviour of the patient frightens the visitor, or the presence of a near relative prevents us doing what, in their absence, would have been done with more benefit for the patient.

From time to time we have heard a good deal about lecturing our patients on dental hygiene. This is all very well if one happens to have the time and inclination, but when we are in the midst of a difficult operation our attention is sufficiently taken up with our work; or say, if our patient is a youngster who will persist in making matters as awkward as he can, while we are struggling with rubber dam, napkins, saliva ejector, &c., with an indulgent mother begging at our elbow not to hurt her little darling, and worrying one's life out almost with all kinds of questions. To add to all this, that we should enlighten our patients on the causes of caries, dental hygiene, and the anatomy and the physiology of the teeth is not an easy matter to accomplish.

I think we all fully recognise that deceiving patients may succeed once, but that such conduct inevitably causes loss of our patient's confidence and trust in us, especially if they be children. It is surprising what young children can endure when once their confidence is established—of course, I allude to the filling of teeth; when an extraction is to be performed, it is far preferable to administer an anæsthetic rather than run the risk of causing pain.

Punctuality ought to be strictly adhered to both by patient and dentist, but how often do we find appointments broken, our time wasted, and the transgressors think it of no moment, while we may have refused to attend to others, thus causing pecuniary loss to ourselves.

Self-control is a commodity of which the dentist requires a good supply. When we get a garrulous patient who annoys us with all kinds of stupid questions, and will persist in holding the head in any position but the one we want it, and takes every chance he has to be continually asking if we have done, or if there is much to do, and what are you going to do next, what is that for, will it hurt?—this is the kind of patient which one requires to keep him-

self well in hand with, especially if our temper does not happen to be serenely calm.

Sir John Tomes, in his address to the members of the British Dental Association at London, in 1886, mentions the advice given him by an eminent physician and a sincere friend of his, when commencing practice, which is as follows: "If you would succeed in private practice you must devote your attention not only to the case but to the personality of your patients; you must consider with attentive kindness their feelings, prejudices, and statements, exaggerated and whimsical though they be. Not in prejudice, but as a help to the successful treatment of their cases, you must make an effort to place yourself in real, not pretended, sympathy with their feelings and wishes; then, armed with superior knowledge and skill, you will be in a position to render them great service, for which they will in return be not only grateful, but will remain your friends."

Our Association is of benefit to the profession and its members in many ways. At times we have patients who require fresh professional aid, through change of residence, and many other causes. The list of members which is published every year with our Journal is most useful for directing them into safe hands in the new quarter to which they are going. I know that foreign dentists, who have had patients coming to England, have used this list, and so endeavoured to steer their departing clients rightly when next they require a dentist.

Patients changing hands reminds one of the injurious remarks we sometimes hear of one practitioner making of another. If the work of our brother practitioner does not reach our ideal of excellence it will be well to think, perhaps he did not enjoy the same advantages and facilities for acquiring knowledge which we may have had. You will agree that we should do all we can to expose quackery and fraud, but even this must be done with delicacy and discretion, or else there is the chance that our motive may be misconstrued, and so our good intention may be misconceived.

Without doubt the British Dental Association is the greatest lever that exists for raising the status of our calling. The members are benefited, both professionally, scientifically, and socially. Much has been done, in almost numberless ways, for us and the profession, by it; but yet, gentlemen, when we look around and see what false and fraudulent practices are still being carried on, the time has not yet come when our enthusiasm and careful watch

must be allowed to cool and rest. Much is yet to be done; some infirmaries boards are to be taught it is not the right and just thing to allow notorious advertisers upon their staffs. Some medical men—either through want of knowledge, thoughtlessness, or policy—still lend their services to advertisers, and also to un-registered practitioners, while the signature of medical men may yet be seen helping to sell some never-failing tooth-ache cure.

ERRATUM.

WE are requested by Mr. Biggs, of Glasgow, to state that he was incorrectly reported in the Transactions of the last Annual Meeting (pages 110-111). His remarks should have read as follows:—

Mr. J. A. BIGGS said he begged the chairman and gentlemen would bear with him while he made a few remarks upon the retaining of lower dentures, as spoken of in Mr. Dall's paper. This he thought he was entitled to, considering that he claimed to be the originator of this method, although he had never put it into practice, but it was known by several members of the profession (Mr. Watt, of Leamington, who was present, Mr. Cormack, of Edinburgh, and others) that he had advocated it being tried many years ago. He did not wish to rob Mr. Dall of what credit he had won in this respect—far from it; for while he was *speaking* of it Mr. Dall had *done* it. He (Mr. Biggs) was credited with considerable persuasive powers, but had never succeeded in inducing a patient to submit to the process. He said that his idea was that in very flattened and wasted lower jaws might be drilled and tapped, and screwed tubes screwed into them, which would serve as sockets for the pins or dowels fixed in the dentures. He did not approve of Mr. Dall's method, as he made the pins to fit in the bare bone sockets, which was sure to set up great irritation; and in time to cut their way right through, and therefore the utility of it would be short-lived. He fully concurred in what Mr. Hepburn and Mr. Williams said. For his own part he did not think it would be a wise thing for members of the Association to go away resolved to put this method to a practical test.

TUBERCULINE.—It may be interesting to some of our readers to know that Professor Koch has succeeded in making an important improvement in this substance, which renders it more efficacious. The details of this improvement will be shortly published.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odontological Society of Great Britain.

THE ordinary meeting of the above Society took place on March 7th, Mr. J. HOWARD MUMMERY, M.R.C.S., L.D.S., President, in the chair. There were a large number of members present, and several visitors. Messrs. Roughton, Percy Smith and M. Y. Woolf having signed the obligation book were admitted members. Messrs. R. C. Waller (Cairo), E. J. Blaaberg, J. G. Wrighton, G. Hern, P. Webster, H. A. Forsyth, M. F. Hobson, F. H. Ellwood, W. S. Holford and A. R. Colyer were elected members.

The usual reports having been received, Mr. F. NEWLAND-PEDLEY showed a dry specimen of a sequestrum from the buccal surface of the alveolar process of a jaw into which a gold filling had been inserted. The patient complained of a small hole in her gum, from which an offensive discharge took place. There had been a gumboil in connection with an upper back tooth, which had led to the condition. A dentist to whom she had gone for advice had inserted a gold plug into the hole in the gum. Mr. Newland-Pedley, when consulted, found necrosed bone and a gold filling inserted into it. He removed the sequestrum with the gold filling *in situ*.

Mr. E. W. ROUGHTON described a case of sarcoma of the hard palate. When first seen, the patient had a smooth, hard, but elastic swelling attached apparently to the periosteum of the hard palate. He had been seen by Mr. Fisk, and recognising the gravity of the case he had at once sent him to the hospital under Mr. Roughton. An examination showed the necessity for an operation, and an incision was accordingly made over the tumour, which shelled out. The palate was then seen to be perforated, and so the left and a portion of the right side of the palate were cut away, and the whole of the disease removed. The patient recovered from the operation, being well enough in six days to leave his bed. On the twelfth day, for no discoverable reason, the temperature went up to 103°, reaching 105° on the thirteenth day—when he died. The necropsy threw no light on the matter, and the death was accordingly attributed to influenza, which happened to be prevalent at the time.

Mr. C. C. ROBBINS showed an ingenious apparatus for heating gutta percha. It consisted of a cylinder which was half full of hot water, and had a good-sized opening at the top. A little tray was placed upon the opening, and the gutta percha placed on it. The whole contrivance could be fixed to the shield of the spirit lamp. The cylinder was filled by means of a syringe.

Mr. GEORGE BRUNTON showed a simple apparatus he had designed and used for some months for the purpose of keeping hot large and small pellets of Japanese paper. He had a receptacle for each, as he

found it far more convenient to keep them separate. The receptacles were surrounded by hot water, which could be utilised as a vaporiser as well, eucalyptus or what not being dropped in, and the whole kept warm by a lamp beneath.

The PRESIDENT said that as there was no actual paper before the Society for that evening, it was proposed to take a discussion upon dental irregularities, but as the subject was a wide one, it had been determined to limit the range to those deformities caused by anterior protrusion in the upper jaw.

Mr. DAVID HEPBURN, in opening the discussion, said that two points were of great importance, viz., the occasional uncertainty of treatment, and again, the marked tendency Nature had to remedy these deformities spontaneously. He said he proposed to deal mainly with those cases in which the deformity arose from an undue bony deposit in the pre-maxillary region, rather than from such mechanical causes as thumb-sucking or the impingement of antagonising teeth. These mechanical causes would no doubt exaggerate the deformity if the tendency to it existed, but there was no doubt that very many of the cases of anterior protrusion in the upper jaw, so commonly met with now-a-days, arose wholly independently of them. Mr. Hepburn was more inclined to attach importance to the influence of heredity in considering the etiology of such cases than was usually recognised, as he had met with families in which the deformity had passed from parents to children. He had noticed a somewhat narrow and abnormally deep temporary alveolus, with the probability of protrusion when the permanent teeth were erupted. It would appear that excessive proliferation of bone cells at about the period of the eruption of the permanent teeth imparts to them an oblique direction; there was also an excessive growth of alveolus going on to a greater or less degree. The anterior teeth grew out as a consequence, sometimes only until the lower incisors impinged against the necks of the superior teeth, but occasionally so much that they and the alveolus might protrude an inch or so in advance of the normal arch, imparting an imbecile look to the child's face. In some cases the teeth were crowded, but this Mr. Hepburn regarded as an accidental complication, due to extreme size of the organs and the displacement of the crypts prior to eruption. This, besides complicating treatment, might lead to displacement of the canines. Unless inimicable impingement of the inferior incisors, or a loss of teeth occurred, there was a great tendency, Mr. Hepburn believed, for Nature to ameliorate the deformity of anterior protrusion. At the eruption of the incisors the deformity reached its greatest extent, and from this point matters grew each year better. The natural increase in length of the bicuspid and molars was an important means of bringing about this, as well as the muscular action of the upper lip. Further, the facial bones and superjacent structures, by

increasing in size, tended to diminish the deformity. That Nature worked in the direction of lessening the protrusion indicated the beneficial effect of judicious treatment, such as raising or altering the bite, removal of harmful antagonism of teeth, extraction of teeth to create space, and, when favourable conditions were established, the employment of pressure by mechanical means to the prominent organs. Further must be considered the physiological change the alveolus must undergo with its growth leading to rearrangement of the relation of the teeth, as indicating when to let alone and when to treat mechanically. The density of the alveolus and the position of the apices of the roots of the protruding teeth, as well as the condition of things in parents, must also prove a guide in treating the cases.

Mr. WOODHOUSE said he concurred in what Mr. Hepburn had said about the restorative powers of Nature. He thought, however, we should assist her. The method he adopted was to make a plate covering the six-year-old molars and allowing the twelve-year-old molars to grow, and had had gratifying results. In some cases when the lower incisors impinged upon the uppers he removed the first bicuspid, although often it was best to take the second. A vulcanite plate with gold bars was used to bring back the teeth, but it was important, he thought, to restrict the process to one or two at a time, otherwise there was a danger of bringing the jaw forward. He laid stress also upon commencing treatment at the right age. Personally he never commenced until after the eruption of the twelve-year-old molars. Mr. Woodhouse showed the model of a plate of a kind which he had used for some years with success. The plate rested more or less upon the upper incisors; if possible upon the four, and fitted to the inside of the second molar. It was highly important to obtain a most accurate fit, and so careful trimming was necessary. From the plate flattened pin wire goes round and grips the tooth very nicely. He thought that as the upper jaw was treated, so must the lower be also treated in the same way, but the lower bicuspids had a greater tendency to retract than the upper.

Mr. WALTER H. COFFIN said he thought it was matter of regret that no common agreement had been come to by the profession with regard to leaving patients to Nature until a fitting time arrived for interference; were such a general decision made it would be far easier to satisfy the parents, who were always anxious for immediate treatment. He acquiesced in the great importance of carefully studying cases before mechanical treatment was adopted to remedy protrusion, as injudicious measures such as capping all the posterior teeth did more harm than good. There was no difficulty in getting results in dealing with these cases, but a good deal of trouble in ensuring their permanency. He thought it desirable that greater discrimination between cases and a better classification might be arrived at, whereby these cases

of protrusion might be more accurately defined and treated. It was desirable that a middle position should be adopted between those who held no cases were to be improved by treatment and those who thought it well to commence treatment when the twelve-year-old teeth were erupted. He thought most persons agreed that unstable appliances did more harm than good, and unless a rigid and yet simple contrivance could be adopted, it was better to avoid the use of any. It was in every case difficult to say how much benefit followed the use of a plate and how much was simply the working of Nature ; still, the point to be insisted upon was the necessity of constructing the plates in such a way that even if they did not assist Nature they would at least not hinder her.

Mr. GEORGE BRUNTON (Leeds) exhibited a model of a case in which he had removed the six-year-old molars, and then backwarded the nine anterior teeth simultaneously by means of an apparatus. He asked if anyone could suggest a means of remedying the tendency the twelve-year-old molars had of tipping inwards after the extraction of the six-year-old molars, as this produced a bad bite. In reply to a question from Mr. Smale, he said the apparatus employed by him for drawing back the anterior teeth consisted of a split plate first to expand the arch, and a vulcanite plate afterwards made to fit the upper extending as far back as the twelve-year-old molars, wires being attached in front of the bicuspid, the wires being bent in from time to time drew back the front teeth.

Mr. STORER BENNETT drew attention to the importance of heredity in the causation of this deformity, and cited some cases illustrating this. He thought also that the dropping of the lower lip behind the upper incisors was also a cause of protrusion. This was sometimes counteracted by the opposing action of the upper lip, but not infrequently the shortness of the upper lip in these cases did away with this safeguard. Mr. Bennett thought the rubber dam might be advantageously used as an apron round the incisors, dropping in front of the lower lip, as well as a means of drawing them in.

A letter was read from Mr. Storey (Hull), narrating some cases of protrusion successfully treated.

Mr. R. H. WOODHOUSE drew attention to another form of protrusion, viz., the unilateral, so commonly associated with the central and lateral incisors on the right side of the upper jaw, and most frequent in adult life. They were difficult to treat ; he had found lessening the length of the central incisors successful in some cases. It was hard to explain why the deformity most commonly affected the right side, unless it was due to the action of the tongue, which, following the movements of the jaw in mastication, worked from left to right.

Mr. W. HERN spoke of that form of protrusion which occurred in young adult life, in which the subject found his teeth gradually growing more and more prominent. This was due to pyorrhœa alveolaris

affecting the lingual rather than the labial side, and leading to a throwing out of the teeth. Mr. HERN quite concurred with the view that if cases were left they improved without treatment, and suggested that this might possibly arise from the action of the lips which the individual would upon reaching years of discretion bring actively into play in order to hide the deformity.

Mr. BETTS had met with satisfactory results from the use of a flat wire in front with a nut and screw so fixed at the side that the wearer could himself give it an occasional turn. This was valuable when the patient was away at school, or what not, and could not be regularly seen, and the using of a retention plate and tipping the lower teeth with a corundum wheel was only necessary afterwards.

Mr. S. J. HUTCHINSON said that the lower incisors should be capped as well as the bicuspid and first molar, as this, while allowing the twelve-year-old molar to rise, also obviated the necessity of the step Mr. Betts had recommended, viz., grinding down the lower incisors.

Mr. W. H. COFFIN said that by using an axial force to draw back the incisors it was comparatively a simple matter to push up the incisors into their sockets when they seemed too long.

Mr. HARRY BALDWIN had found a band of rubber dam used as a strip and buttoned on to the plate useful, not only as a means of pulling the teeth back but also to push them into their sockets and so prevent their lengthening, by bringing them from an oblique to a vertical position. He deprecated extracting the six-year-old molar unless it were carious or excessively long, or had its pulp exposed, and gave besides the usual reasons the additional one that if you extract it you remove a far more powerful support to the bite than was constituted by the bicuspid. If the bicuspid were extracted this risk was not run.

Students' Society, Dental Hospital, Liverpool.

THE last general meeting in connection with the above Society was held February 19th, Mr. R. H. BATES in the chair.

The SECRETARY read the minutes of the last meeting, which were duly confirmed. Casual communications were then brought forward in which Messrs. Bates, Phillips, Woods, and Byrne took part.

Mr. BATES exhibited a good selection of teeth which, owing to some abnormality at their roots, were impossible to be treated as dead teeth with any good result.

Mr. WOODS exhibited a good specimen of a supernumerary tooth taken from an adult person.

Mr. BYRNE showed a very similar case to the one just mentioned.

Mr. PHILLIPS then explained the reason why he did not hold his

annual prize examination on dental surgery, and stated that he was still anxious the students should benefit by it, and had therefore resolved to present the value of the prize, he had in previous years given, to the Students' Society.

The CHAIRMAN then called upon Mr. Osborn to read his paper on "Treatment of Pulpless Teeth," after which a lively discussion ensued, taken part by Messrs. Bates, Mansell, Phillips, Byrne, and Woods.

Mr. GUYLER then proposed a vote of thanks to Mr. Phillips for his generous donation, which was seconded by Mr. WOODS, and carried unanimously.

After a vote of thanks had been accorded Mr. Osborn for his interesting paper, the CHAIRMAN announced the next meeting for March 18th.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Traumatic Erysipelas after Tooth Extraction.

By HENRY BLANDY, L.D.S.Edin.

I. T. L., aged twenty, was admitted into the Nottingham General Hospital on January 30th, 1892.

Notes from Hospital book, revised by Mr. Waring:—

Condition on admittance.—The whole of the face is markedly swollen, but the swelling is especially noticeable on the left side. His cheek bulges prominently, and the skin is reddish in colour. The left eyelids are swollen and œdematous, the eye cannot be opened. The upper lip is very much swollen, and protrudes above and in front of the lower one about an inch. Skin hot and of a reddish blue tinge; the subcutaneous tissues over the swollen parts are felt to be hard and brawny. Lower lip perfectly normal. The patient himself is in a semi-delirious state and prostrate, breathing rapidly (respirations 48), and is in a profuse perspiration. Temperature 102.6°. Pulse 128. He is unable to open his mouth so as to allow a good view of his gums and throat, but on inserting the finger into his mouth no ulceration can be felt, and there are some deficient teeth in the upper jaw on the left side (probably molars). He complains of sore throat and difficulty in swallowing (probably œdema glottidis).

History of the Case.—The patient works at the stables of the Midland Railway Company, and has had a good deal to do with horses. Patient was carrying on his work till a week before admittance. On Tuesday night, January 26th, he complained of pain

in the left cheek and gums, and bad toothache. There was some slight swelling of the gums and cheek at the time. He had suffered from tooth-ache on and off since Christmas last. A week or two after Christmas he had a tooth out. He had some bad stumps in the upper jaw on the left side.

On account of the toothache and swelling from which he was suffering, on Tuesday (January 26th) he went to a chemist to have these stumps on the left side of the upper jaw removed. The stumps, the patient says, were only partially removed, and he says there was another left in. The gums were at the time also lanced. The next day (Wednesday) the swelling of the gums and cheek increased, and also the pain. He gradually got worse until his admission on the Saturday.

Remarks on the Case.—There is no doubt that he had some cellululo-cutaneous erysipelas of the face, and there is also very little doubt that the infection arose in connection with his teeth.

A consultation of the physicians and surgeons of the Hospital was held on Sunday morning, and the question arose as to whether the case was one of glanders, and although the patient had symptoms in common with that disease (as swelling of face, slight nasal discharge, fever, delirium, &c.), yet there was no cutaneous rash, nor farcy buds, nor nodules.

I photographed the case, using Edwards' isochromatic plates, but they having been in the house some months were unsuccessful, and on my return with other plates, Mr. Tresidder, the house surgeon, had made about twelve deep incisions into the affected brawny tissue. There was no pus. I took a successful photograph. Patient died the same night.

Considering the very great stir in the medical, surgical, and dental world upon the subject of microbes and bacteria that has been going on for some time, it appeared to me that this case would be of especial interest, for several reasons. When one constantly sees the very great care that has been of late years bestowed upon the aseptic and antiseptic treatment of ordinary surgical wounds—I mean clean cuts with a mercurialised or carbolic knife, the wound and its surroundings being manipulated by hands scrupulously washed and disinfected—and compares this with the somewhat rough-and-ready way dental forceps are applied, teeth and stumps dragged out, leaving torn gaping wounds, one is apt to be astonished that there are not more cases of erysipelas and septic diseases arising from tooth extraction. I was reading

to-day, in the *Dental Cosmos*, an article by Dr. Bergtold, which states that at least 100 species of bacteria had been found in the mouth, of a more or less pathogenic character. We do not stitch up our wounds; we do not encompass them with mercurialised wool, blue gauze, and bandage up the mouth. They are open to invasion of any germ that may be lurking about in the mouth, round diseased roots, or in them; in the foul breath we often meet with in those cases where wholesale extractions are necessary; and in any external air, in milk, food, and water of all kinds. In explanation of this, it is held that the very vascular condition of the gums supplies the leucocytes which are said to destroy noxious bacteria. Thus Nature comes to the aid of the dental surgeon, and his patient is rescued from the perils which seem so imminent.

Beyond washing out the mouth with warm, or sometimes cold water, and prescribing a lotion of weak phenate of soda, chlorate of potash and carbolic, or some simple thing of that kind, I suppose no one feels it necessary to go. But I always well wash my hands in hot water, with soap, before I touch anyone's mouth, and my instruments after they have been used.

It is, however, astonishing, that we do not get more serious cases. In fact, this case is the first one of the kind I think I have seen in about thirty years' experience. But it should teach us a lesson of carefulness—like a death from chloroform. We never know when we may be the unfortunate cause, and we should be very careful to have everything that comes in contact with wounds thoroughly aseptic. I had the good fortune to hear an address by Mr. Butlin, the eminent surgeon of St. Bartholomew's, the other night, upon wounds and their treatment. He has abolished sponges in his operations, as possible germ carriers. I do not see why we should not use rolls of lint as swabs, and then burn them. He has come to the conclusion that Listerism has been carried too far, and that the customary strong antiseptic lotions have been unnecessary, and in some cases injurious, but he insists upon operators' and assistants' hands being thoroughly cleansed, and all instruments being thoroughly rendered aseptic. I saw a year or two ago a certain peripatetic dental operator—of gilded chariot and brass band renown—go from mouth to mouth with instruments entirely unwashed, save that at times he wiped them with the rag he used to remove the perspiration from his own face.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Bearing of Recent Biological Researches on the Practice of Medicine and Surgery.

By G. SIMS WOODHEAD, M.D., F.R.C.P. EDIN.

DIRECTOR OF THE LABORATORIES OF THE ROYAL COLLEGES OF
PHYSICIANS (LOND.) AND SURGEONS (ENG.).

(Continued from page 101.)

WHERE there are no lesions of epithelial surfaces, and where the tissues are moderately healthy, bacteria cannot invade the body; or, if they do find their way in, they are killed off, comparatively rapidly. Accepting this statement, we are still confronted by the fact that patients, especially those treated in our large hospitals, are admitted because they are suffering from such lesions; in addition, from the very fact that they find it necessary to seek hospital shelter, they are often ill-clad, overworked, and badly nourished. Their hygienic surroundings are none of the best, and these acting on a weak constitution have further impaired any general vital powers ever possessed by them. (It must be remembered, however, that in this process a certain immunity by acclimatisation may have been acquired against some forms of disease, although the susceptibility to others may have been materially increased.) Such are the patients for whom antiseptic surgery was originally introduced. Their tissues were not able unaided to combat the many micro-organismal agents found in our badly ventilated and often permanently infected wards before the system was introduced, and for such, in some form or other, it still remains necessary.

All will admit that patients in perfect health before an accident, if operated upon and kept under good hygienic conditions, supplied with good food and plenty of fresh air, will make a good recovery without excessive, or perhaps with a complete absence of, suppuration, and with no symptoms of pyæmia or even of septic absorption beyond a rise of temperature with other indications of a slight febrile condition. In a similar patient a large accumulation of serous fluid—in the chest, say, or of synovial fluid in the knee, or a mass of bruised and dead tissue—the result of a blow—may be slowly absorbed without the slightest trace of putrefaction or septic change being set up. Should, however, any dust from without or any dirty instruments be introduced into these masses of devitalised tissue, inflammation and more or less severe suppuration are at once set up, and an empyema, a purulent synovitis, or an abscess may be the result. In a weakened or anæmic patient with an open wound or with an accumulation of serum, an extravasation of blood or a mass of dead tissue, most of the conditions favouring septic mischief are present, and as he is placed in a ward with other patients, breathing the same air, dressed by the same hands, and operated on with the same instruments, the risks of septic mischief are enormously increased unless the strictest antiseptic precautions are taken (1) to remove any dead tissue on which the organisms might feed; (2) to prevent the access of micro-organisms to the wound or dead tissue—(a) from the cutaneous surface, or (b) from the lungs or alimentary canal; (3) to put the tissues under the best possible condi-

tions, so that the phagocytes (or the blood serum, or both) may manifest their special protecting powers—in fact, to allow of what we call the healing power of nature to come into play; (4) to remove from the region of the patient, from dressings, and from instruments, all organic and other matter which might possibly harbour putrefactive or septic germs. These I was taught by Lister (although he never spoke of phagocytes) to look upon as the main factors in the antiseptic system of treating surgical cases. Although the methods by which these ends are to be attained have necessarily been modified from time to time as experience has indicated fresh difficulties and suggested better means of obtaining the desired end, and although the kind of antiseptic used may have been altered (not always improved) as experiment and experience seem to have indicated certain advantages to be gained by the use of one or other reagent, the above principles as enunciated by Lister still remain unaltered, and I may be allowed to speak of some of these points.

Of the removal of dead tissue on which the organisms may feed it would at first sight seem unnecessary to speak; this has been so fully insisted on by even those who, "having no faith in antiseptics," all of whom acknowledge the necessity of carrying out this part of the system. The older surgeons, than whom none were more careful in observation, had a horror of all sloughs and dead matter in their wounds; and though many of them were delighted enough to see "healthy laudable pus" (healthy because it showed that the tissues were reacting, and were doing their work of localising the mischief as far as possible), they were glad enough to get rid of it. All accumulations, such as those above mentioned, necrosed bone and the like, once exposed to the air were removed as soon as possible, and even those that were not so exposed were frequently removed by incision or excision. It is now known that these, in weakened and unhealthy patients especially, were sources of danger, because decomposition changes were set up in them by the septic or other organisms which found their way to them, either directly from without through the broken cutaneous surfaces, or indirectly through diseased mucous membranes, and thence conveyed by fluids and cells deprived of their healthy or normal activity.

Let us take the case of puerperal fever, which is now recognised as resulting from the absorption of septic material from the cavity of the uterus. Under normal conditions where the placenta is thoroughly detached, and there is no great hæmorrhage, the clots are soon removed, the discharge ceases, or appears to undergo no decomposition changes until the uterine wall has so far healed that a barrier to the absorption of the products of decomposition is built up, and no damage is done. If, on the other hand, fragments of placenta remain adherent and hæmorrhage occurs, the frequently broken surface continues to absorb for some time, and fever is the result. The introduction of scarlatinal, erysipelatos, or septic germs in either case is, as we know, attended with the most disastrous consequences, as even where the amount of hæmorrhage is comparatively small the blood that is present affords sufficient pabulum for the growth of the organisms, which once gaining a foothold have a coign of vantage from which to commence to form their poison, and in some cases from which to invade the tissues of their host. The practice of obstetricians was, from our present point of view, for long far in advance of that of

surgeons in the matter of douches, cleanliness, and the like, but the general surgeon may certainly claim priority as regards the adoption of antiseptics or any systematic or methodical plan. The first cardinal rule with the obstetrician is that all matter that could possibly harbour germs or afford them sustenance of any kind is most scrupulously removed. The second and third rules, as stated by Lister, are attended to by constant application of antiseptic douches, especially where the wall of the uterus is more injured than usual, and the fourth rule is made much of as in general surgery.

This presence of dead material in wounds has always been looked upon as one of very great importance. Sloughs, masses of dead tissue, synovial fluid, serum, the fluids in the serous cavities, and even blood itself have been, and still are, considered, in the positions and under the conditions in which they are sometimes found, as being detrimental to the healing of wounds, and also as affording a nidus in which micro-organisms might flourish, however they might find their way into the wound or cavity. Lister, recognising the necessity of getting rid of this material, especially in the earlier days of his method, utilised indiarubber drainage-tubes, which in his hands and in the hands of those who followed out his method in all its details gave most admirable results. After a time, however, as the methods became simpler and more reliable, it became evident that there were many cases in which drainage-tubes were unnecessary, and which would be better treated by compression along with strict antiseptic dressing, especially where the parts could be left untouched for a considerable length of time; or by the use of a modified form of drain of chromatised antiseptic catgut, which could be left in position until absorbed, thus doing away with all necessity for disturbing the wound, the catgut being first absorbed in the deeper part, and disappearing entirely as the wound closed from below and just at those points where it was no longer needed. It has been objected that the presence of an indiarubber drainage-tube prevents the sides of the wound from coming together, and that many cases in which healing by first intention might be obtained are kept from so uniting and the recovery of the patient is somewhat retarded. The objections, however, do not end here. Any foreign body, as we have already seen, causes irritation and consequent exudation of both serum and leucocytes, and the tube by its presence keeps up a constant and sometimes prolonged discharge, as a result of which the dressings are saturated, they have to be removed more frequently, the wound is exposed, and the risk of infection is increased in proportion to the increased number of dressings required. Welch* points out that in addition to these objections there are two very important ones—viz, (1) that in these tubes any bacteria which may get in find protection against the "bactericidal influence of the tissues and animal juices;" and (2) that "bacteria may travel by continuous growth, or in other ways, down the sides of a drainage-tube, and so penetrate into a wound which they otherwise would not enter;" and he says, "we have repeatedly been able to demonstrate this mode of entrance into a wound of the white staphylococcus found so commonly in the epidermis." Anyone who has had to treat large suppurating wounds in which the granulation tissue has from time to time blocked the lateral holes in a drainage-tube knows how difficult

* *Maryland Medical Journal*, Nov. 14th, 1891.

it is to withdraw, clear, and shorten the tube without causing some hæmorrhage, and I remember well the regrets that were given utterance to by Lister and Chiene when they found it necessary to disturb the granulations by which the healing was being brought about, as they were thus compelled to undo part of the work that was already done; and, perhaps, even still more important, they had to disturb nature's barrier of active connective tissue cells well supplied with bloodvessels and leucocytes, set up to prevent the entrance of bacteria or their products from the wound. Drainage-tubes are no doubt necessary in certain cases; but Welch has well summed up as follows: "The advantage from the employment of drainage-tubes is, of course, the removal of secretions, and this indication becomes an urgent one if the cavity with which the tube communicates becomes infected and suppurates. In a given case the surgeon must weigh the advantages and disadvantages, and act according to his judgment. The practice of many surgeons at the present time of restricting within much narrower limits than formerly the use of drainage-tubes and of discarding them for all wounds which offer a fair prospect of primary union is a distinct advance in the technique of antiseptic surgery." Of the various methods of treating wounds without drainage it is now not necessary to speak; but one method of treatment cannot be passed over without something more than a mere reference. It has already been insisted that where there is any danger of micro-organisms finding their way to a blood-clot the very best treatment may be to evacuate the whole mass and then allow the wound to heal by granulation. Then, too, no one would think of leaving blood-clots in any serous cavity if he could possibly remove them without doing any injury to the peritoneum.

In the case of smaller cavities, however, and in healthy patients, the removal of blood-clot is not necessary, and under antiseptic treatment the blood, even in considerable quantity, may be of very great value in serving to form a scaffolding (a scaffolding which is said to retain a certain amount of vitality) on which new tissues may be built up. The first two cases I saw of the actual application of what had been suggested by John Hunter were in the wards of Professor Lister and Mr. Chiene in the Edinburgh Royal Infirmary. The experiments were carried on independently, so far as I can remember, and within a very short time of one another. In Lister's case a long deep groove had for some reason or other been made in the front of the tibia. This groove or trough was allowed to fill with blood, after which the wound was dressed with the strictest antiseptic precautions. Each time as the wound was dressed and as the clot contracted, fresh blood (obtained by simply pricking the clot) was run in until there had formed a mass of organised tissue which completely filled up the groove; periosteum grew over, and a capital result was obtained. Chiene's case* was of a somewhat similar nature. After the removal of a large horn from the heel of a patient a cavity of considerable size, forming a kind of box, with the os calcis as the floor, was left. This cavity, filled with blood and covered with "protective," was dressed antiseptically, and on the sixteenth day organisation had taken place in the clot, and the epithelium had commenced to grow in from the margins of the wound. There was, however, a hollow left; this was again filled with blood

* *The Lancet*, July, 1875. See also *American Practitioner*, July, 1879.

drawn from the now vascularised clot, and organisation took place. Unless antiseptic precautions are taken it would be impossible to obtain such organisation in blood-clot in an open wound ; for although it is quite possible, nay, it has been actually proved, that freshly drawn blood has some power of inhibiting the growth of, or even of killing, certain micro-organisms, this power is soon lost, so that if exposed for any great length of time to the attacks of micro-organisms the clot must ultimately undergo decomposition changes, and so lose its value as a scaffolding into which connective tissue cells and young capillary vessels can make their way. Many surgeons have a dread of blood-clot in any position and under any circumstances, but now, owing to the above observations, and, according to Welch, especially as the result of the later observations of Schede (1886) and Halstead (last year), the filling in of wounds with blood-clot has to be recognised as an extremely useful method of obtaining healing. Lister insisted on the power of freshly drawn blood to resist the advance of putrefactive germs, and he indicated that these powers of resistance are much greater than we are usually inclined to allow. His observations have been confirmed, and blood-clot has taken its place as a dressing.

On the other hand, no one will for a moment contend that blood-clot with its contained red blood-corpuscles is equal to the fibrinous lymph such as we obtain on an inflamed serous surface, for example, as a medium in which organisation may take place. It is a soft, plastic material, which, like lymph, may fill every space ; by adhesion it keeps parts in apposition. It contains for a time active living cells, and then allows of their immigration, as blood-vessels come near it ; and lastly, it is made up principally of a proteid substance which can be readily peptonised and removed as new cells and tissues come forward to take its place. Its great disadvantage, as compared with fibrinous lymph, is, that it contains a large number of red blood-corpuscles and much soluble blood pigment, which appear to act as useless foreign bodies, and all of which must be absorbed before healing can take place, and in this process of absorption many active useful phagocytes are occupied when they might be engaged in the removal of effete necessary material. Here, again, it must be remembered that the less work the phagocyte has thrown on it to do, the more rapid will be the process of healing. It is for this reason that so many surgeons allow bleeding to stop, then allow serous exudation to go on for some time, and then, and not till then, bring the two free surfaces together. Where spaces have to be filled in, a large enough quantity of coagulable lymph cannot be obtained, and the next best substitute, coagulated blood, is used in its place. This method may be used in any case where antiseptics are employed, and where the tissues of the patient give any help at all ; but woe betide the operator who allows blood to get in where it should not be, so that tension is set up, or who allows bacteria to gain a footing on the surface of his clot. The only advice that can then be given is, "get rid of all the unorganised clot as soon as possible, and leave only that in which partial or complete organisation has taken place, or that part in which a protecting layer of granulation tissue has been formed." After saying all this, we may be compelled to come to the conclusion that "under good antiseptic technique,* wounds will

* Welch, loc. cit.

heal, even when they are left entirely to themselves, whether drained, obliterated, or filled with blood." "Exudations composed of fluid and cell would greedily accumulate in most of the spaces, and the fluids and cells possess anti-bacterial properties as well as blood. Granulation tissue would spring up from the sides. I venture to predict that if the surgeon paid no particular attention to the filling or obliteration of many of the smaller spaces in fresh operation wounds, and if the antiseptic technique was good, the process of healing would be as satisfactory as by any of the other methods mentioned."*

The aim of Lister's second rule is to prevent the access of micro-organisms to the wound or dead tissue, for, as he pointed out, once there they can only be attacked by means of powerful chemical antiseptics, which necessarily exert a most injurious influence on the tissues which under ordinary circumstances require to retain all their vitality and activity, in order that they may deal with the organisms which might under any circumstances find their way into the wound. Everyone knows how chloride of zinc in strong solution interferes with the absorption of septic poison from a septic surface after an operation in which the tissues have been damaged by bruising and cutting. It first acts as a powerful antiseptic, preventing the growth and development of the micro-organisms and the production of their poison in the tissues otherwise prepared for their reception; whilst after a time it also sets up great leucocyte exudation, not only at the free surface, amongst and beneath the dead tissues, but also beneath the surface, so that the lymph spaces are filled with both fluid and leucocytes, both of which, as we have seen, exert a certain bactericidal effect. We may say, in fact, that in such a case bacteria are kept in check by the antiseptic until the tissues have had time to throw up defences, a process in which they are assisted by the antiseptic itself, which acts as an irritant foreign body. Strong antiseptics may even be used to render wounds actually aseptic after the introduction of septic material from without. In a case of compound fracture, where a large quantity of dirt has been pressed into the wound, the thorough flushing out with strong carbolic acid solution has, in Lister's hands, as I have repeatedly seen, given the very best results. Here, no doubt, the result was effected partially, as above described, but another factor must not be left out of account. The strong irritant, acting on bruised and partially devitalised tissue, continued the devitalising process, rendered sloughing easier, and accelerated the removal of all tissue that might interfere with the healing of the wound, or that might afford a nidus for the growth of micro-organisms. In these cases special requirements are indicated, and each case has to be treated according to the ingenuity and judgment of the surgeon; and the man who has grasped the principles of treatment most firmly will invariably obtain the most satisfactory results.

It may be accepted that any antiseptic substance in a wound not naturally there is out of place.† The spray is not now so generally

* This opens up a much wider question, and one on the discussion of which we can scarcely enter at present, but for which we refer those specially interested to Professor Welch's paper.

† I well remember the pride with which I received Lister's commendation for reproducing this teaching of his, in a somewhat exaggerated form, in an examination paper sent in when I was a junior student of surgery; whilst later

used as formerly, as its use is thought to be attended with no special advantage at all equal to the trouble that it involves. There can be no doubt, however, that at the time it was used it was a most important factor in the success of antiseptic surgery, and I for one am scarcely convinced even yet that the disfavour into which it has fallen is an unmixed blessing. It is stated that it created currents of air which brought dust into the region of the wound, and that the carbolic acid contained in it was not sufficient to kill organisms that came under its influence. Admitting all that, I cannot help thinking that it acted as a most efficient watering-cart, and that much of the surrounding dust was precipitated, and once down was held there by the carbolised water, and that for this reason, if for no other, its use added to the success of the earlier operations. I am of this opinion especially as I saw the series of experiments carried on by Professor Chiene and Mr. A. W. Hare, in which, out of a large number of vessels containing nutrient broth, some opened under the spray and some without it—all in the same room—the number of those in which growths occurred was far greater in those opened without the spray than in those opened with it. Greater care as to the washing of everything with an antiseptic lotion has in part taken its place, but, I am still inclined to believe, not entirely. Of dressings for the prevention of access of micro-organisms to a wound it has often been said that all that is necessary is to have an "aseptic" substance. Theoretically this is true enough, but practically it is very misleading, for as soon as a dressing becomes damped it becomes an excellent conducting path for the passage of micro-organisms, unless it contains some antiseptic substance which will interfere with the activity of, or actually destroy, the invading micro-organisms. It is an easy matter to keep a culture in a test-tube pure if free evaporation through the sterilised cotton wadding plug is allowed, even when dust is permitted to settle on its surface; but if the moisture is kept in by means of gummed paper, tinfoil, or indiarubber caps, it is necessary to take the very greatest care to destroy all micro-organisms beneath the moisture-enclosing substance. Any antiseptic substance will act more or less as an irritant, and cases have been recorded in which the continuous washing out of a wound has kept up irritation and suppuration for a lengthened period. Where wounds are septic we have to choose the lesser of two evils, but where the wound is aseptic all that is necessary is to keep it so, and nature will do the rest. It will be necessary here to speak only of the micro-organisms that may come (1) directly from without, (2) from the skin, and (3) from the cavities and channels within the body.—*The Lancet*.

I was much impressed by a dictum of John Duncan's (a thorough believer in the utility of the antiseptic system), that if we thought more of the application of antiseptics to ourselves, and less of the application to the wound, the patient would be the gainer.

Physiological Action of Peroxide of Hydrogen.

IN a preliminary paper on "Peroxide of Hydrogen," which he has continued to study since his original investigations published in 1860, Benjamin Ward Richardson (*The Asclepiad*, first quarter, 1891) adds considerably to our knowledge of a drug which has lately claimed much clinical attention. In his physiological researches he finds that "living cell-structure of every kind, presented to the peroxide solution, if it does not absorb, liberates the oxygen, and seems to distinguish by that phenomenon organic structure that has become cellular, organic, and vital, from that which is not yet cellular or organic, and from that which has passed from the organic and vitalized state to the inorganic and dead." Upon open surfaces meeting with organic material, oxygen is liberated and decomposition produced, a process which is hastened by elevation of temperature and pressure. Again, if introduced within mucous cavities which contain no foreign substance capable of liberating oxygen (*e.g.*, pus), the peroxide is not decomposed. Under these conditions, absorption into the circulation with liberation of oxygen takes place, and if this gas be in too great quantity to be carried away entirely by the red blood-discs, it accumulates in the chambers of the circulation and causes death in the same way as air injected into a vein. A similar result follows injection within the peritoneum. Subcutaneously injected, the peroxide is at once decomposed with the production of temporary emphysema and elevation of temperature, with partial arterialization of venous blood, but without important local trouble resulting. When injected directly into the lung there is diffusion of oxygen, so that life may be supported for several minutes with respiration entirely cut off. Purulent matter and probably the white blood-corpuscles liberate oxygen very freely from the peroxide; the author inclines to the belief that bacteria may have the same reducing power.—*University Medical Magazine*.

REVIEWS AND NOTICES OF BOOKS.

MANUAL FOR THE PHYSIOLOGICAL LABORATORY, BY
V. D. HARRIS, M.D.Lond., F.R.C.P., and D'ARCY POWER, M.A.,
M.B.Oxon, F.R.C.S.Eng. Ballière, Tindall, & Cox. Pp. 345.
Fifth edition.

THE fifth edition of this justly popular handbook will be found of immense service to dental students. It supplies a want, which was rapidly becoming very serious, in its excellent detailed account of the apparatus employed in modern microscopy. This subject is already an established item in our examinations, and will undoubtedly assume a greater importance every year, so that a careful account of the instruments required for the preparation of sections, the injection of specimens, as well as the mechanism of the modern microscope itself, profusely illustrated with capital

cuts, is a very substantial addition to the practical student's library. In addition to this new matter, there is an excellent series of histological chapters, lucidly written and well illustrated, and, finally, a second part, devoted to physiological chemistry. We should think that this book represents pretty accurately the kind of knowledge required at the College of Surgeons, and when we add that it is thoroughly revised up to date, freely illustrated, and lucidly and simply written, we think we may safely predict that the fifth edition will prove no less popular than its predecessors.

MICROSCOPICAL AND LABORATORY GOSSIP.

DR. HARLAN'S METHOD OF DEVITALIZING PULPS.—The method of devitalization of pulps recommended by Dr. Harlan is well worthy of attention, the results obtained being highly satisfactory. He applies a mixture of arsenic, iodoform, and cocaine for forty-eight hours, and then swabs the cavity with dialyzed iron, this correcting the influence of the arsenic by forming with an insoluble compound. An alcoholic solution of tannin is then allowed to remain in the cavity for eight days, after which it will be found that the pulp can easily be removed and the canals filled with success.

HARDNESS OF STEEL.—An ingenious method of testing the hardness of steel has been invented by a Swedish metallurgist. It is based upon the intensity of current necessary to fuse a wire of a standard size. By experiment the current required to fuse standard wires of different degrees of hardness can be determined, and upon this basis the quality of any sample can be ascertained.—*Discovery.*

A RECENT number of the *Chemist and Druggist* suggests the following as useful for neuralgia :—

Dried sulphate of iron	...	...	1 oz.
Sulphate of quinine	...	...	$\frac{1}{2}$ oz.
Gingerin...	...	...	20 grains
Hydrochlorate of morphine	...	...	40 grains
Extract of henbane	...	...	1 oz.

Glycerine of tragacanth, a sufficiency.

Triturate the quinine and morphine with the dried sulphate of iron, then add the gingerin and the extract, using as much glycerine of tragacanth as will make a good mass. The mass should be well beaten, so as to incorporate the ingredients thoroughly.

Divide into 3-grain pills, and roll well in French chalk and starch. Dose: One pill, morning, noon and night, while the pain lasts. Two may be taken at bedtime, if necessary.

SUPPURATION following hypodermic injections is frequently due to want of cleanliness, and no doubt many cases ascribed to the injection of cocaine can more correctly be assigned to the dirty syringe than the drug. After using the syringe it should always be thoroughly cleansed and rendered aseptic before putting away.

A USEFUL method of cleansing the hands after the use of carbolic acid is to bathe them thoroughly in alcohol and then anoint them with vaseline or lanolin. If corrosive sublimate has been used, a solution of common salt should be used—1 in 50—and the hands then washed with soap and water, and finally rubbed with lanolin.

FROM *Discovery* we learn that during recent excavation at Chericira, in Tunis, some valuable fossil quadrupeds have been found. Amongst them is a fine specimen of the jaw of a mastodon, which has been identified as that of a *mastodon augustideus* of the middle miocene beds.

AT times the mercury in a vulcanizer becomes divided. To remedy this, heat the vulcanizer top until the mercury tube becomes filled, and then let it cool slowly.

THE best pictorial dental joke we have ever seen has been recently perpetrated by Mr. F. Page for the Edinburgh Students' Dinner. It must be seen to be appreciated. "Putting on a crown that won't come off" is the legend of a graphic scene of the investment of 5s. with a welsher at a racecourse; a policeman treading on a dog's tail is "a canine stump giving pain;" a lady persuading her husband by smashing the water jug over his bald head is called "Porcelain Inlays"; while "well stopped with the dam on" quite defies description.

A NEW alloy of silver, which contains no base metals, has lately been introduced to the working jewellers under the name of "masperak," by Mr. Adolf Hamburg, of Hatton Garden. A specimen has been submitted to us that we might test its applicability to dental uses. We find that after a month's use it discolours very little, if at all (except in the case of tobacco smokers, when it discolours very quickly); it works well, and strikes up

beautifully, takes gold solder. A further and more extensive trial will doubtless disclose other properties, and we shall hope soon to hear more of it from some of our experimental friends. It will be obtainable, we understand, at a slightly lower rate than dental alloy.

ANNOTATIONS.

WE greatly regret that owing to some unfortunate oversight the name of Dr. Smith, of Edinburgh, was omitted from the account of the President's reception in the September number of the Journal, and in the Transactions. Dr. Smith as a Vice-president was present to receive his guests with his fellow presidents.

A MEETING of the Representative Board will be held on Saturday, April 2nd, at 40, Leicester Square, at 3.30 p.m. Notices and agenda of business will be sent to the members previously.

WE are asked to state that the next meeting of the Southern Counties Branch will be held at Eastbourne on Saturday, April 9th. At present the place of meeting is not yet settled, but due notice will be given. The Secretary will be glad if any gentlemen who may be willing to read papers, bring forward casual communications, &c., at the meeting, will communicate with him at his address, "Eastbridge," Addiscombe Road, Croydon.

WE understand that Dr. Klein, who is carrying on investigations, at the request of the Government, on the Etiology and Pathology of Influenza, is himself a victim to the disease, complicated with a sharp attack of pneumonia. The latter is happily clearing up, and so placing him out of danger.

ODONTO-CHIRURGICAL SOCIETY.—The Annual Meeting of the Odonto-Chirurgical Society (Session 1891-92) was held in the Rooms, 5, Lauriston Lane, Edinburgh, on Friday, March 11th, at 2 p.m., Mr. G. W. WATSON, L.D.S., President, occupying the chair. The reports of the Treasurer, Curator and Librarian were received, and the office-bearers for the ensuing Session elected, viz.:—Mr. G. W. Watson, President; Mr. J. Stewart Durward and Mr. John Stirling, Vice-Presidents; Mr. James Macintosh, Treasurer; Mr. J. Graham Munro, Curator and Librarian; Mr. John S.

Amoore, Secretary; Messrs. Price, Biggs, Wilson, Macleod, Councillors. A paper on "Some New and Improved Methods of Treatment of Empyema of the Antrum" was communicated by Mr. G. W. Watson, while Mr. J. Leslie Fraser (Inverness) exhibited a universal electric mouth illuminator, an electrical dental switch-board, and a new rubber-dam holder. Mr. W. Howard Gray (Glasgow) also exhibited an electric mouth-lamp, with an arrangement to keep it cool when in position by a current of water.

It may interest many of our members to know that the Medical Director General of the Navy, Dr. Dick, is displaying a very practical appreciation of the value of dental surgery to the naval surgeons under his charge (and likely to be on active service), by a recent order of his, requiring six of them to go on furlough for the purpose of acquiring some knowledge, and, if possible, proficiency in the subject at the dental departments of the London hospitals. He has also ordered that certificates of attendance upon the course of dental instruction must be produced, and mention made therein of the proficiency of the medical officer. From this fact it will be observed that the question of affording dental treatment to our "tars" afloat, of a kind superior to what is ordinarily received by them from the ship's bay man, has at length attracted the attention of the authorities. This question, which has on previous occasions engaged the serious attention of our Association, and has even led to official representations to the Admiralty, has now, in the able hands of Dr. Dick, assumed a somewhat definite shape, even if it is not quite in accordance with the ideal advocated by many, namely, the appointment of dental surgeons in the service—a matter, by the way, upon which the Admiralty have expressed the strongest disapproval in their communications to this Association. At any rate, as far as the "tar" himself is concerned, it is a step in the right direction, especially when, in these degenerate times, he has to eschew ship's biscuit, on account, as he puts it, perhaps truly, of his teeth, except at a pinch when other provisions give out.

AN influential member of the Association writes to us from Edinburgh as follows:—

That the Limited Liabilities Companies Acts contain within them provisions for cheaply and easily and efficiently converting charitable and scientific associations into corporate bodies having a legal status and a

common seal, without in the least interfering with their voluntary or charitable, or professional standing, and without bringing them within the category of a "trade concern" is a fact not generally known, or if known, not generally taken advantage of. The Directors of the Edinburgh Dental Hospital and School, under guidance of their legal adviser, having had the provisions of the Companies Acts explained to them, agreed at a meeting held on Friday, the 12th Feb., to take advantage of the facilities which the Companies Acts afforded them. Without quoting the exact words, we may explain that the Acts provide that an Association such as this may register under the Act and enjoy all the rights and privileges conferred by the Act, holding property, &c., &c., under a common seal without using the word [Limited] in conjunction with its title, provided that the Association is not worked for profit; and the Committee appointed at this meeting have had several meetings and drawn a Memorandum and Articles of Association, but as these are still under consideration, we deem it advisable to postpone a full consideration of the question until these have the sanction of the Board of Trade. In the meantime we give the following example from the Memorandum so as to disabuse the minds of our readers from any notion that our Edinburgh friends do in the least degree contemplate the floating of a Limited Liability Company in the popular sense of that term:—

"The name of the Association shall be 'The Edinburgh Dental Hospital and School.'

"The objects for which the Society is established are, to provide for the poor advice and treatment in diseases and disorders of the teeth and mouth.

"The income and property of the Society, whencesoever derived, shall be applied solely to the objects of the Society as set forth in the Memorandum of the Society, and no portion thereof shall be paid or transferred, directly or indirectly, by way of dividend or bonus or otherwise, by way of profit, to the persons who are, or have been, members of the Society.

"If upon the winding up of the Society there remains, after satisfying all legal claims, &c., any surplus of any kind, the same shall not be paid to or distributed to the members of the Society, but shall be handed over to some other institution having objects similar to the objects of the Society."

The above excerpts clearly proclaim that the Institution will be conducted on the same philanthropic basis as before, and be quite free from the faintest suspicion of being a trading concern.

THE DENTAL HOSPITAL OF LONDON.—The Thirty-fourth Annual Meeting of this institution was held at the Hospital, Leicester Square, on March 10th, Sir Edwin Saunders, the Treasurer, occupying the chair. In the report, which was unanimously adopted, the Managing Committee congratulated the Governors on the continued success of the institution, and also on the great benefits which the hospital continues to afford to the suffering poor, 54,177 cases having been treated during the year 1891, a large number of them painlessly (under anæsthetics);

being 5,413 over the previous year, and 34,922 in excess of the number treated in 1874, when the hospital was removed to its present site. In consequence of the still increasing number of patients, it had been decided that in addition to the morning all departments of the hospital should be open in the afternoon, and that a Sub-Committee had been appointed to consider the advisability of additions to, or alteration of, the hospital with a view to securing further accommodation. The "Dental Appliance Department," in connection with supplying artificial teeth, &c., was still doing good work on behalf of the charity. Unfortunately, there was £1,000 remaining of the mortgage debt on the hospital, and they urgently appealed for funds to enable them to rid themselves of this encumbrance, incurred for the extension of the hospital, rendered indispensably necessary to meet the growing wants of the charity. The Managing Committee regretted that there had been many losses by death of annual subscribers during the year, and it was most desirable, if the good work of the institution is to continue, new annual subscribers should be introduced. The charity is unendowed, and additional funds would enable it to greatly extend its usefulness.

DENTAL HOSPITAL ATHLETIC CLUB.—A most successful dinner in connection with this club was held at the Holborn Restaurant on Saturday, March 5th, when the chair was taken by the Dean of the School, Mr. Morton Smale. Over 170 guests were present, including a very large number of past and present students, a good gathering of the staff, and a large number of visitors, among whom we noticed Drs. Ernest Hart, Noy Scott, Miller, Herschell, Donald Baynes, Professor Darby, Messrs. Field, Waterhouse, Pearce Gould, Boyd, Shield, Trimmer, Hallett, Greenfield, Sutton. The usual loyal toasts having been duly honoured, the Chairman proposed "Success to the Dental Hospital Athletic Club," which was responded to by Mr. W. J. Pike, the Secretary of the Club. The toast of the "Hospital School" was given by Dr. Ernest Hart, and responded to by Mr. William Hern, and that of "The Chairman" being given by Mr. J. F. Colyer. An excellent selection of music was given during the evening, and great credit is due to Mr. E. Lloyd Williams for the management of this part of the programme. The Musical Society, aided by some boys' voices, rendered three or four part-songs with credit. Solos were ren-

dered by Messrs. Hepburn, Wheatley and Percy Webster; while the comic element was also well represented, Mr. Herschell giving two of Chevalier's popular songs, and Mr. Schartau caused unlimited amusement, especially with a political parody on the well-known ballad, "Sally in our Alley," and Mr. Butterfield with "I've Worked Eight Hours this Day," with an appropriate dental tag, which was naturally received with great enthusiasm. In addition, Mr. Frank Brain gave two humorous recitations, and Mr. Herschell and his brother also gave a short entertainment on second sight. A word of praise must be accorded to Mr. Taylor for the exceptionally able way in which he presided at the piano. All considered the evening was most successful, and in a great measure was due to the excellent arrangements of the secretary, Mr. W. J. Pike.

MR. JUSTICE DENMAN's decision in the case of Partridge *versus* the General Medical Council—a report of which, in abstract, appeared in our February number—will very probably be the last we shall hear of the matter. The plaintiff was nonsuited on all the points raised. The principal lessons to be learnt from this action, or rather series of actions, are: (1) that if the General Medical Council, after due consideration, considers that anyone whose name is on the Register has been guilty of disgraceful or infamous conduct from a professional point of view, they may erase the name, and their action in so doing cannot be reversed by a court of law; this is a most important point, and has now been established by the highest legal authorities; (2) that the Council, as also Lord Esher and Lord Justice Lopes, consider that to enter into an engagement not to advertise, and then, notwithstanding remonstrances from the other parties to the engagement, to persist in advertising, is "disgraceful," &c.

APPOINTMENTS.

GEORGE G. CAMPION, L.D.S.Eng., has been appointed Dean of the Victoria Dental Hospital of Manchester, *vice* Henry Planck, resigned.

W. RICHARDS, of St. Austell, has been appointed Hon. Dental Surgeon to Fowey Cottage Hospital.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Mr. W. Mitchell upon Personal Dental Education.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Mr. Smith Turner has omitted to mention that Mr. W. Mitchell; about whose offensive effusion in the *International Dental Journal*, he writes, is a member of the British Dental Association and of the Odontological Society of Great Britain. It is this fact alone, of course, which lends the least importance to Mr. Mitchell's writings. Under the circumstances, I think the members of both those bodies are justified in calling upon Mr. Mitchell either to substantiate or to withdraw and apologise for the statements which he has ventured to put forth. First, there are only three Dental Journals published in this country. Will Mr. Mitchell give us one citation from either of these papers in which the "value of (respectable) American degrees is questioned and ridiculed"? Secondly, there are three dental schools in London, the Dental Hospital, National Dental Hospital, and Guy's Hospital. Will Mr. Mitchell, after discussing the qualifications of the teachers and the method of instruction carried out, give us the grounds upon which he bases the judgment that these schools are "more of a cheap burlesque than a worthy replica" of American Colleges? Thirdly, the number of leading men in this country who hold American degrees could be represented by the fingers of one hand. Will Mr. Mitchell, in face of this fact, give us the evidence upon which he founds the statements "that the best and most progressive students seek the halls of learning in America to secure that which they were unable to obtain here."

In the capitals of European countries, where, until late years, dentistry has remained an art scorned by the medical profession and by men of science, and relegated entirely into the hands of charlatans, American dentists have been enabled to take the leading position as practitioners. In this country there have been usually to be found a sprinkling of American practitioners who have deservedly won the esteem and confidence not only of the public, but of the profession. These have been individuals accomplished in their calling, and having those gentlemanly instincts without which high class professional character cannot exist. These men have neither sought to puff themselves nor to vilify or malign the dental institutions and the dental profession of the land of their adoption. It is not likely that any one who lacks such personal attributes will ever achieve a similar position. At least, it is now and has been always certain that be his nationality what it may, no dental practitioner can ever attain eminence in the British metropolis unless his personal qualifications are

those of a gentleman, and unless his publicly spoken and written utterances show him to be possessed of that minimum amount of general culture and scientific knowledge which are the indispensable requisites of everyone claiming to be regarded even as an ordinary member of a learned profession.

On the other hand it cannot be affirmed that either country, creed, or colour has ever in England formed an obstacle to attainment of truly deserved eminence in any department of practice. There are in these islands many men of alien blood distinguished as physicians, surgeons, and specialists; and it would be false to allege that the merits of these men receive less complete acknowledgment, or that they personally receive less respect from the profession than is freely accorded to men of native birth, of equal character and attainments.

I am, Sir, your obedient servant,

Feb. 19th, 1892.

S.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—There is a tone of viciousness about Mr. W. Mitchell's communication to the *International Dental Journal* which cannot be passed over in silence, and for the honour of the school I represent I unhesitatingly pronounce his remarks to be absolutely false in word and in spirit. Considering that in all branches of science and art students visit continental schools, is it to be wondered at if dental students should follow a similar course? It would be a direct insult to the body of students who have graduated at our colleges were I to qualify them under the comparisons of good, better, best, but I can say that of those who have distinguished themselves most in their academic career not one has sought the American diploma. These words *have* fallen from the lips of some of our students which may not sound quite in concord with Mr. W. Mitchell's views—"As I need only put in eighteen months more, my father thinks I might go to America and pick up any further information I can obtain and take one of the American diplomas," and thus it is we find that about one per cent. have added an American diploma to their qualifications.

Mr. Mitchell's sympathies with American dental colleges may be well meant, but I fail to see the origin of his enthusiasm, and certainly if he desires to uphold the spirit of the journal he supports with his communication to advocate *international* dental education, he will fail by his unjust structures on the merits of the English schools. All lovers of science are proud to acknowledge the work done in schools of honourable reputation, and long may it be before that feeling dies out. Mr. W. Mitchell would have done himself more credit had he made himself familiar with the internal working of our schools before he penned his unfortunate communication; as it is I can only regard

his remarks as the result of ignorance or personal pique. Apologising for trespassing upon your valuable space,

Yours very truly,

F. HENRI WEISS,

Dean of the National Dental College.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the last number of the Journal, Mr. Mitchell asks why the best English dental students go to America to complete their education?

With some personal experience of English and American Dental Schools, I should say our best students stay at home, where they are quite as well instructed in technical knowledge and professional ethics.

In short, Mr. Mitchell's assumption is, throughout, based on imagination.

I am, Dear Sir,

Yours faithfully,

F. NEWLAND-PEDLEY, F.R.C.S. & L.D.S.

March 3rd, 1892.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—In an extract from an article by Mr. W. Mitchell, quoted by Mr. Smith Turner in your last issue, Mr. Mitchell asks, "Why is it that the best and most progressive students, after completing their course on this side, and having learned all their instructors were capable of imparting to them here, seek the halls of learning in America?" &c.

The answer is a very simple one. During the years I have been officially connected with the Dental Hospital of London, about 230 students have been educated there, and received their diplomas from the Royal College of Surgeons; of these, not more than eight have gone to America, and certainly they were in no special sense, or indeed in any sense, the best and most progressive of our students; in one case, the student who came out top of the list of an American college at which he attended, had been several times unsuccessful before obtaining his diploma in England.

Mr. Mitchell, no doubt, will feel himself in honour bound to give similar publicity to the answer that he has already given to the question.

MORTON SMALE,

Dean, Dental Hospital of London.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Many will read with surprise the remarks and tone of Mr. W. Mitchell's article in the *International Dental Journal*.

It would be interesting to have the source of his information as to the best students going from this side of the Atlantic to American Dental Colleges, could he supply us with a list of names, dates and colleges.

I have looked over our roll for the last ten years, and cannot point out one student who has gone over to the other side to obtain further dental knowledge or degree. In fact, all our past students, with the exception of two or three who have given up all idea of entering the profession, have taken their diplomas at one or other of the colleges of Great Britain, and are now successful practitioners in different parts of the country.

I remain,

Faithfully yours,

FRED. W. RICHARDS,

Hon. Sec. to the Surgical Committee.

Dental Hospital, Birmingham,

March 4th, 1892.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—On reading the extract from Mr. W. Mitchell's speech, with which you favoured us in last month's Journal, my curiosity was awakened by the cock-sure audacity of his assertion, and I sought to test its accuracy by a reference to the Dentists' Register for 1891.

The result is as I expected. The statement is but another example of spread-eagleism, resulting from a limited knowledge and a too persistent and exclusive association with co-patriot log rollers. Had Mr. W. Mitchell kept his eyes open, and in a desire for truth made honest use of the opportunities placed within his reach by the very people whom it is his pleasure to decry and revile, and had he at the same time read with intelligence the dental literature of his own country, I think he would have crowed less loud and struck a truer key in estimating the comparative merits of British and Transatlantic education, and the efficiency of their products. That our *best* students have gone, or do go, to finish in America I have no hesitation in denying, and in proof thereof have but to quote the names of Tomes, Mummery, Smith Turner, Gartrell, Underwood, Parkinson, Hepburn, Hutchinson, Woodhouse, Smale, Lloyd Williams, and a whole host of others who in point of head or hand will hold their own with the best that ever an American college turned out. As for the rank and file, I am convinced from a pretty extensive intercourse with dentists in Britain and in America that, taking them *all round*, the British dentist is better trained for his life's work, and there-

fore more reliable than his Transatlantic brother. That some of our men do go to the "halls of learning in America" is beyond doubt, but I am sorry to admit that it is not always the best and purest motives—viz., the desire for an efficient training—which impels them to seek in America that which they could obtain at home. These shirk the harder course of study demanded by our home authorities, and, strange anomaly, seek and obtain in a republic a royal road to the prefix "Dr.," with which to gaudily deck their sparse abilities ere they "open shop," and swagger their gilded lure in the eyes of a gullible public. On the other hand, some of our licentiates embrace the opportunity which personal circumstances afford them, cross the Atlantic for a short sojourn in one or other of the American cities where a reputable school exists, and with a wisdom which does them credit and proves them good students, make acquaintance with their fellow-practitioners and students, join them in post-graduate work, and deservedly reap the benefit of an extended course of study and practice. This, however, not from the "towering superiority of American teaching," but because, coming in contact with fresh minds attaining the same ends by methods differing in slight details from the home methods, their powers of observation and reflection are sharpened, and they become less insular and more eclectic in their practice. That our system of education is more than a "cheap burlesque" of his vaunted Alma Mater is shown by the fact that in America at present the engrossing topic in dental circles of repute is how to raise the quality of the teaching in American schools so as to assimilate it to the British standard. Not that our system has reached perfection (God keep us from egoism). We are ever ready to adopt new methods; not, however, because they are new, but only when they have the probability, if not the certainty, of being an improvement on the old. We have had *much* good from America, Mr. W. Mitchell, *but not ALL*. A great deal even of that *much* has been taken from the old country and re-shipped—an old friend with a new face. Said a well-known American dentist to a friend of mine some years ago, "Yes, doctor, there's not a workshop on this side into which I've been but what I've seen something new, or got some new idea, and I guess when I go home I'll *patent them*."

Might I whisper it gently, so as not to give Mr. W. Mitchell's vanity too great a shock, that it is gradually dawning on the American dental student's mind that there is some good in the schools of the old country, and that he is at present making inquiry as to the terms on which he will be received post graduate?

As for a reply to his second query, I am glad that Mr. W. Mitchell is in no haste for an "immediate reply." When it is given may it be "in camera;" otherwise the answer might evoke a display of linguistic pyrotechnics more forcible and entertaining than convincing or polite.

March, 1892.

KOSMOS.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—What ungrateful wretches we European dentists must be! When all our questionable means to secure a diploma of one of our own colleges—which after all, we are told, is only, well, "a cheap burlesque"—has failed, Brother Jonathan receives us with open arms, and for a few dollars grants us a genuine bogus article, and yet we dare question its value. Surely, Sir, as Mr. Turner says, "Comment is unnecessary." Yet I think one statement should not be allowed to pass unanswered. The best of English students generally *are* satisfied with the curriculum here, and do not seek the "halls of learning in America," and the few I have come in contact with who aspired to the American Doctorate, have not proved themselves in practice to be in any way superior to their fellow students who have been content with the teaching received in English schools.

Yours truly,

R. EDWARDS,

Dean of the Liverpool Dental Hospital.

Liverpool, March 4th, 1892.

The Higher Dental Qualification Question.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The correspondence on this subject now taking place in your pages bids fair to exemplify the old saying that the use of controversy is to confirm the contending parties in their own views. Certainly I have not the least expectation of convincing "S." either of the possibility or desirability of a higher qualification in dentistry, and he is probably equally sceptical as to the effect of his argument on me. Time and space alike forbid me to attempt a full answer to his last letter, so I must confine myself mainly to a few remarks on his criticism of my criticism of certain passages which appeared in his first communication. Those passages were: "The institution of a higher dental diploma . . . would establish a bad precedent;" "It is impossible to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England;" and "The special science pertaining to dental surgery . . . is after all of extremely limited extent, and an exhaustive knowledge of it is well within the scope and powers of any industrious student of even mediocre ability."

The first of these statements he in part abandons; the other two he reasserts and defends. "The institution of a higher dental diploma would not," he now thinks, "*establish* a bad precedent," because "As to precedents for the proposed new degree, *there are plenty* of ancient ones but none new." Since, then, he tacitly admits, though he does not acknowledge, the justice of my strictures on this point, I am not without hope—a faint hope, I grant, but still a hope—that he will

admit a little more. "The whole spirit of medical reform" is, I notice, arrayed against me as solidly, as imperviously as ever, and I suppose that if "S." were asked to say where this mighty power has of late been most signally manifested, he would point to the Medical Act of 1886. Yet this Act, which provides for the direct representation on the Medical Council, which enforces the possession of both a medical and surgical diploma as the qualification for registration, and has thus led to the formation of the conjoint boards, and the issue of the conjoint diplomas—this Act, which seems to be animated throughout by the whole spirit of medical reform, provides that "The diploma of member of the King's and Queen's College of Physicians in Ireland, and the degree of Master in Obstetrics of any university in the United Kingdom, shall be deemed to be added to the qualification described in Schedule A to the Medical Act, 1858." Now to add a degree to Schedule A of the Medical Act (1858) is to provide for its registration on the Medical and Dentists' Registers; and registration, as "S.," I am sure will agree, is of the very essence of a degree. A degree in medicine, or any branch of medicine which cannot be registered has no point, no validity. This we saw the other day in the report of a case which was brought before the Court of Queen's Bench, and we see it, too, in the case of so many of the American dental degrees, which, being unregistrable, are valueless in this country. Here, then, in the last Medical Act—which is, I take it, a recent outcome of "the whole spirit of medical reform"—we find a *new* precedent for the institution of a higher dental qualification, a precedent of a kind which "S." quite confidently assures us has no existence whatever.

Next I come to the second of "S."s statements, on which I commented in my last letter—the statement that "it is impossible to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England." A piece of evidence furnished by a recent examination is lightly dismissed as "a somewhat questionable student's tale." But to attempt to discredit evidence which you cannot disprove—and evidence, too, on a matter in which you profess yourself to lack information—is hardly perhaps an indication of that open and receptive mind which is so necessary if controversy of this kind is to be anything other than a mere effort to force one's own hasty and inadequate opinions upon others. The fact of the dental examiners at the English college suggesting to the Council the institution of an honours examination, of which the chief point, or one of the chief points, was to be a more severe examination in the purely dental subjects, is to his mind no evidence whatever of the incorrectness of his opinion. On the contrary, it only "furnishes further evidence of the improbability of the question ever arriving within the range of practical politics." Nothing comes amiss to this versatile writer. It "would need a special Act of Parliament" he says. Not at all: it is provided for in the Dentists Act. Subsection 6 of Section XI. em-

powers the General Medical Council to register on the Dentists' Register any additional diplomas, degrees, &c., "granted after examination by any of the medical authorities in respect of a *higher degree of knowledge* than is required to obtain a certificate of fitness under this Act." Counsel's opinion which was taken on this clause, and the discussion upon it by the Medical Council, to be found in your pages in 1882, show it to provide amply for the *registration* of both a higher dental diploma and a dental degree, and the Universities (Scotland) Act, 1889, empowered the Scotch Universities to institute degrees other than those then existing. So that at the present time the Scotch universities have power to institute a dental degree, and the Medical Council has power to register it. Probably, however, the right to grant degrees in medicine and surgery carries with it the right to grant a special degree in dental surgery, and even if this should not be the case, any university which wished to do so would only have to obtain a slight extension of its charter, which is a very different and relatively simple matter to obtaining a special Act of Parliament, such as, for example, the Dentists Act.

Further, "S." still clings to the belief that "the special science pertaining to dental surgery. . . . is after all of extremely limited extent, and an exhaustive knowledge of it is *well* within the scope and powers of *any* industrious student of even mediocre ability." "A student," he says, "is not required to settle controverted points; he is only called upon to show a grasp of the opinions of such writers as have valid claim to authority, and if there are dark spots in science he is not called upon to illuminate them, but merely to know where they lie, and to estimate their significance." With this, of course, I fully agree. "It would take much space," he continues, "to fully prove my contention that an exhaustive knowledge of dental science is well within the scope and powers of any industrious student of even mediocre ability." Here too I am entirely at one with him. It would, I think, take much—very much—space and perhaps an infinity of time, besides a considerable amount of at present unavailable evidence, to *fully prove* this contention. Let us hear what the dental examiners have to say on the point. In a leading article on "Examinations" in the Journal for December, 1888, I find—"the dental examiners are already complaining that the candidates lack anything like real grip of their subjects, though they answer the usual text-book questions with some facility; if you present to them some unusual combination which requires them to put two and two together they break down." That is the opinion of the examiners, and to an ordinary mind like my own the condition of things here revealed seems incompatible with an *exhaustive* knowledge of the subject on the part of the students. To be sure it is open to "S." to say that many dental students are not "industrious," and that the remainder are not "of mediocre ability." But this tempts us

to enquire whether he writes from experience as a teacher who is coming closely and constantly in touch with students? Here we see one of the real inconveniences of anonymous writing, which prevents us from obtaining information on this point, and also from estimating and allowing for the writer's personal equation by a reference to other papers that he may have published.

I once heard Sir James Paget say, "There are many in every walk of life, who, when they say 'I believe what I see,' might just as fairly say, 'I see what I believe,' and these, though they are usually in the wrong, are usually the most positive in their assertions. They believe what they wish, and then they see what they believe; and then they become unable either to see or to believe anything contrary to their wishes—anything contrary to what they call their clear convictions." Now "S." seems evidently to have a very "clear conviction" that "it is impossible to formulate a scheme for a diploma in dentistry higher than that of the College of Surgeons of England," and that "an exhaustive knowledge of dental science is well within the scope and powers of any industrious student of even mediocre ability"—a conviction so clear that nothing short of a mathematical demonstration is likely to shake it, and perhaps not even a mathematical demonstration.

Possibly "S." may have happened to read Mr. Sewill's letter in your January issue on the "Sterilisation of Carious Dentine." It concluded with a striking protest against the adoption of a tone of exaggeration. "In addressing the scientific world," he says, "nothing can be more fatal to success than the least suspicion of exaggeration. It not only creates distrust, but excites disgust; and I have the best reason to know that writings of the character I lately criticised have been frequently cast aside as worthless, simply for the reason that the exaggeration appearing in some details excited suspicion that none of the statements were to be relied upon, and that the whole composition was unworthy of serious study, attention, or respect." "S." I venture to think, has hardly profited as much as he might have done by Mr. Sewill's warning. Let me commend it to him for further and more serious thought. And perhaps the more he ponders it the more he will be inclined to agree that exaggeration such as we find in the sentences I have examined is not desirable in a discussion; that it "not only creates distrust," but that it also "excites disgust;" that writings of this character "have been frequently cast aside as worthless;" that they are "unworthy of serious study, attention, or respect," and should rather be relegated to the waste-paper basket than hurried incontinently to the printer.

I persist, then, in thinking, in spite of the "bad precedent" which it would "establish," in spite of the "impossibility" of the thing, in spite of its requiring a "special Act of Parliament" to carry it out, in spite of its being "safe to say it will never be done," and in spite

too of that wonderful pervasive and dominating if somewhat vague power, "the whole spirit of medical reform"—that this thing will be done. I persist in believing, even in the face of this overwhelming combination of opposing forces, that just as a surgeon takes a higher qualification in surgery, just as a physician takes a higher qualification in medicine, and just as an obstetrician takes a higher qualification in obstetrics, so too, in the not far distant future, a dentist, if he wishes to further qualify himself for the practice of his profession, will be able to do so by obtaining a higher qualification in dentistry, and not be obliged to look away from his own special work, and aim at placing his name on the Medical Register. I grant that at present it is mainly the privilege of faith to see this end to our papers, our discussions, our after-dinner speeches, our communications from "S." and all their contents; but we shall see by-and-by whether in this, as in other matters, faith does not prove in the end the true prophet. The impossible, after all, does sometimes happen, and this may be just one one of those impossibilities.

Yours faithfully,

Manchester.

GEO. G. CAMPION.

Nitrous Oxide.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—May I ask through the medium of your valuable journal whether there is not to be bought or made some inexpensive arrangement that would force a small quantity of gas (say, a couple of doses) into one of the ordinary iron or steel bottles direct from the gas holder. I make my own gas, but find it rather awkward occasionally when I want to administer it at the home of a patient, for I often find that the bottle obtained from the manufacturers that I keep for this purpose generally only allows me to abstract two or three doses from it, the rest mysteriously disappearing by the time it is again required for use. In addition to this I very much prefer using my own gas in all cases.

Hoping some of your numerous readers will be able to put me on the track of some simple device for the purpose named, and thanking you in anticipation, I beg to remain,

Yours sincerely,

ENQUIRER.

The Annual Meeting at Manchester.—The Museum.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I shall be glad if you will allow me, through your pages, to inform the members of the Association generally as to what we are doing in the matter of the Museum for the Annual Meeting. Obviously the museum of the kind sketched in your last issue can only be brought together by the co-operation of members in all parts of the

country, and naturally when men are asked to lend specimens, the question which first springs to their lips is, "Shall I be sure of getting my specimens again undamaged and in a reasonable time after the meeting?" This question has been occupying the attention of the Local Museum Committee for some little time, and we think that the arrangements we are making will prevent any risk of loss, or damage from bad packing. Three kinds of labels have been prepared for fixing to the specimens: a long narrow one for fixing round the tubes in which isolated specimens of irregular teeth will be exhibited, a squarish label for fixing on models; and one with an eyelet for tying to pieces of apparatus for regulating teeth and other specimens on which labels cannot be gummed.

The labels for the glass tubes will have spaces for the name and address of the sender, or for the name of the lender, and the name of the member of the Museum Committee through whom they are forwarded. The other two kinds of labels have in addition spaces for a brief description of the specimens to which they are attached. A large number of these labels have been printed, and I shall be happy to supply them to any member of the Association who has specimens to send. If these labels are attached to specimens before they leave their owners' possession there will be no possibility of any confusion or of returning specimens to the wrong people.

Next, as to the risk of sending such fragile things as models of teeth by train. I have just made an experiment in packing which shows, I think, how the danger of fracture during travelling may be avoided. A number of models were packed in a wooden case and sent by goods train to London and back. At the bottom of the case was a layer of straw about two inches thick, then a single layer of models wrapped in newspaper, then another layer of straw, and so on till the case was full. A model, when being wrapped up, should be placed in the centre of a squarish piece of paper, and the edges of the paper turned in towards the centre, and crumpled down over the teeth. This forms an elastic cushion, which helps to prevent damage. The box of models packed in this way returned without the least damage to one of them. Where models are articulated together a layer of cotton wool should be placed in the bite before they are wrapped up. All models and other specimens lent by members will be packed in this way, and will be despatched to their owners in the week after the meeting closes. The packing will in all cases be superintended by two or three members of the Local Museum Committee. The Committee believes that in this way effective provision has been made for the safe return of specimens to their owners, and that if specimens are forwarded properly labelled there need be practically no doubt about their prompt and safe return.

I hope next month to send you a list of the Museum Committee; meanwhile may I appeal to those gentlemen to whom circulars were sent in the middle of February, and who have not yet answered, to

kindly do so without delay? It is hoped that members of the Museum Committee will form centres for the particular districts in which they live, and that specimens may, as far as possible, be forwarded through them, as this will greatly facilitate the return of the specimens afterwards.

The Council of the Owens College has granted the use of the entire College for the purposes of the meeting, and we hope to be able to arrange for specimens to be sent to the College and unpacked there, as this will infinitely lighten the labour of the Local Committee.

I hope to give further particulars on this point next month; meanwhile we shall be glad if members will be so good as to look up specimens and send for labels to fix to them.

Yours faithfully,

GEO. G. CAMPION,

Hon. Sec. Museum Committee.

The Medical Defence Union.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Some recent speakers and writers on dental politics seem under some misapprehension as to the objects with which the Medical Defence Union was established, and is maintained. These objects were not and are not by any means solely or even largely the enforcement of penalties against unqualified practitioners, who, by false pretence and assumption of titles, violate the medical acts. The Union was started and is kept up for the protection of the individual medical practitioner—protection against blackmailing, false charges, and the vast number of vexatious legal difficulties into which every practitioner is liable to fall during the conscientious pursuit of his daily occupations. The number of prosecutions under the medical acts which have so far been undertaken by the Union have been few in number and exceptional in character, and it is certain that such prosecutions will be still rarer in the future. The attitude in this regard which the members desire the Union to assume was again defined and confirmed at the annual meeting on Wednesday, February 25th, and this attitude is exactly what I have indicated. There exists no public medical body which takes upon itself the function of public prosecutor in offences against medical law. The Medical Council does not prosecute, the colleges and corporations do not concern themselves in such matters except in cases personal to themselves; and as there is no public officer charged with this duty, it is not to be wondered at that the number of unqualified practitioners in one or other department of medicine, who, with impunity, pretend to be duly qualified, is so large and so capable of effectually imposing on the ill-informed public.

I am, Sir, yours faithfully,
A DENTAL MEMBER OF THE UNION.

Anæsthetics.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the *Lancet*, September 12th, 1891, in reply to H.A.L. (Carlisle), appears the following:—"The practice of administering chloroform, ether, or other of the more dangerous anæsthetics by dentists, without the presence of a medical man, is, we believe, by no means common, and one to be strongly deprecated. We doubt if compensation in case of a mishap could be obtained, but that is a legal point which is not quite within our province."

Now Sir, I wish to ask (in order to obtain information from some reliable source), if it is to be understood by this that a thoroughly qualified L.D.S. England, Ireland or Scotland, is guilty of a practice "to be strongly deprecated" when he administers gas to a patient with the aid of an assistant? Does the excerpt quoted above express the mind of the Medical Council or the B.D.A. on the subject? If it does, certainly the sooner the status of dental education is raised the better!

Is there no fixed authority to say whether an L.D.S., who administers gas *without a medical man*, is or is not "to be strongly deprecated"? Can a registered dentist, a member of the B.D.A., administer gas with an assistant, but without a medical man?

These are questions of vital importance to dentists who wish to know, *as a certainty*, whether they are to consider themselves as transgressors of the law (civil or medical) when they give gas for the extraction of a tooth without a medical man being present. That many do so is well known; whether they are entitled to do so is the point. But if an L.D.S. of England, Ireland and Scotland may not do so (as would appear from the *Lancet*) without a doctor, what does all the teaching of dental colleges, hospitals, examinations, &c., amount to? In many cases the medical man knows *less* than the dentist with regard to gas!

In conclusion, it might be suggested that if dentists be thus debarred from exercising this indispensable part of their calling, why not compel those who wish to administer gas to pass some examination which will qualify them to administer it with as much freedom and impunity *as a doctor who has never given it can do now*? A dentist, sufficiently cautious, confines himself, in ninety-nine cases out of a hundred, to the administration of gas alone.

You will confer a favour, not alone on the writer of the letter, but on others also, if by its insertion some *definite conclusion* can be come to on this important matter. I am surprised the B.D.A. have drawn up no code of rules or regulations on the administration of anæsthetics by dentists.

I remain, yours sincerely,

X. Y. Z.

Absorption.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I am very much obliged to the two correspondents who have responded to my appeal for information upon the above question, though I think they have nearly missed my point. My query was: Why do we find such a difference in the quality of the pain arising in temporary teeth, and in permanent teeth where absorption is taking place?

A "Junior M.R.C.S., L.R.C.P." throws some light on the subject when quoting from Tomes' "Dental Surgery," third edition, p. 428; he says: "The pulp undergoes a degenerative change, by which the temporary teeth are robbed of their extreme tenderness." It would be interesting, if it be possible, to show how and when this degenerative change takes place. Of course there must be something of the kind, or pain would be felt. I regret my edition is the second. In the next paragraph, as to my case of absorption of the palatal root of the second upper molar by an advancing wisdom, my correspondent somewhat ignores my facts, and becomes tutorial and didactic. I state "there was no visible cause for the intense neuralgia." My friend says, "in these cases it may be pointed out the crown of the wisdom *shows through the gum*, the point of impact being the neck of the molar," producing a septic condition, and hence pain, &c. May I in turn refer him to our good friend Tomes, second edition, p. 448, where he will find an almost identical case to mine, which was treated by a leech on the gum. Had the wisdom shown itself through the gum, going head first into the second molar, I suppose Sir John would have seen it, as most probably I should also in my case. There was no caries in my case. I thank both correspondents for their efforts to improve my knowledge of the process of absorption, and I frankly own I wrote those notes to gain information, and I don't mind the least being taught all they know.

I stated that the roots of the temporary teeth disappear by reason of the advance of the permanent teeth, and sometimes *otherwise*. With the *otherwise* we have nothing to do now. It does not appear to me to matter at all whether there be anything in the way of a cushion between the two hard impinging bodies. The fact remains, one comes up, the other is eaten out. The hydraulic ram, or common lift, has a fluid elastic body between pistons, but it has immense force, and these osteoclasts may be the most soft and crushable cells, but the very pressure may irritate them into working all the harder. I am going to adhere to my statement "that as a rule when we are called upon to extract children's teeth we find that the permanent tooth has scooped out room for itself in the temporary roots" until I find temporary molars tumble out whole.

An "Old Student" asks "in what way I conceive a pulp or papilla

may become trapped by chewing an india-rubber ring or dense gum-resisting eruption?"

My idea is this: In the baby's jaw you have a hard base of bone; on this jaw lies the papilla which becomes the tooth-secreting pulp, depositing above and around it enamel, dentine and cementum; as the tooth is built it is pushed up towards the gum, eventually breaking through it; until the root is finished building and is supported by the alveolus, the pulp is liable to be trapped by any sudden pressure, as by an india-rubber ring, or to be exposed to a constant irritating influence by the difficulty it has sometimes in working its way through a dense gum. Occasionally considerable constitutional disturbance arises: great salivation—nurses call it slobbering—diarrhoea, convulsions and so on, and the lancet applied over the now swollen gum relieves the tension, up springs the tooth, and all is well. We sometimes get a similar thing in adults who are cutting their wisdom teeth, which lancing at once relieves. I merely used this as an illustration of pain on pressure on the nerve, and hope I have made my meaning clear.

I shall be very pleased if I can elicit any consensus of scientific opinion as to the reasons for this difference in pain, and I should be much obliged, and I am sure other members would, if the gentlemen who are at so much trouble to give us the result of the investigations which they are so much more able to carry out than provincial dentists, will append their names. It gives so much more weight to a dictum to be able to think—Tomes said so, Sewill said so, than "An Old Student" said so, or a "Junior M.R.C.S., L.R.C.P." thought so.

I am, Sir, yours, &c.

HENRY BLANDY.

Dr. Harlan on the Treatment of Pyorrhœa Alveolaris.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The greater our lack of knowledge concerning the etiology and pathology of a disease the greater must be the uncertainty of treatment. Treatment under such circumstances can be based solely on empirical knowledge, it must be mainly experimental. It is usual to write of pyorrhœa alveolaris as though it were a malady about the nature of which we are completely in the dark. Is this so? I for one think not. I believe the analogy between this disease and certain affections of the hair and nails—an analogy which was some time ago drawn independently of each other by Mr. Sewill and Mr. Jonathan Hutchinson—is a good one. Pyorrhœa in its etiology and pathology is certainly near akin to sycosis. In the vast majority of cases, patients manifest a lowered standard of health, and in this condition, owing probably to local mal-nutrition, a process of chronic

inflammation is started in tooth sockets. This inflammation soon becomes more or less purulent, and there seems good reason to believe that the secretion may be infective in character, and so the malady probably spreads from alveolus to alveolus, exactly as it undoubtedly spreads from hair follicle to hair follicle in capillary sycosis. If this be a true view of the nature of pyorrhœa, surely nothing in the nature of strong counter irritants—blisters or blistering fluids, such as strong ammonia—can be called for. This is the treatment apparently recommended by Dr. Harlan in the extract from the *Dental Review* printed in the Journal for February. Perhaps that brief extract does not do justice to Dr. Harlan, it would be interesting to learn his opinions at greater length.

It seems to me as great a mistake to classify all cases of premature shedding of the teeth under the heading of pyorrhœa alveolaris, as it would be to classify all cases of alopecia under the heading of sycosis. There are many varieties of alopecia, and certainly several distinct varieties—both as to etiology and pathology—of premature wasting of the alveoli. The hair may be lost under several circumstances, without discoverable presence of disease in the scalp or hair follicles; and without any suspicion of systemic disease as a cause. These are the common cases of premature baldness in men, and they are paralleled by similar cases of wasting of the alveoli and early loss of the teeth. As the teeth loosen in these cases, a certain amount of inflammation sooner or later supervenes, but this is usually exceedingly chronic, and unaccompanied by that discharge from within the free edge of the gum which I deem characteristic of true pyorrhœa.

In syphilitic alopecia, and in alopecia due to debility such as so often accompanies the child-bearing period, or follows and accompanies the zymotic fevers—typhoid for instance—pathological conditions in the scalp or hair follicles are also as a rule absent, and these cases also have their exact counterpart in premature shedding of the teeth through chronic wasting of the sockets. I by no means wish to imply that hair and teeth disease of these kinds usually co-exist; on the contrary, in my experience they are rarely found together in the same patient.

I believe I have seen cases of true pyorrhœa, which, if they have not yielded to treatment, have at any rate got well; the process of wasting has ceased and the parts have resumed their healthy aspect. Other cases are so extremely chronic, or become so after a period of greater activity, that the disease seems to have died away; but this appearance is often deceptive, and the mischief is progressing, but with such slowness as to be with difficulty recognised and appreciated. I have seen many instances (and these have been mostly in female patients), where the incisors and bicuspid have been alone affected; and sometimes only in the upper jaw. The teeth remain firm almost to the end, but they gradually elongate. The discharge

is so slight as to be with difficulty recognised, and in some instances I believe there is none. The cases last for years before the teeth are lost. The alveolar lining swells to a minute degree and pushes the tooth out to a corresponding extent. This swelling never subsides, the thickening of the alveolar lining becomes organised, and the protrusion of the tooth made permanent. This process goes slowly on, ever progressing, never retrograding, until at length the unsightliness of the projecting teeth leads the patient to insist upon their removal for the sake of appearance. I have recently seen a patient, the history of whose case was precisely of the kind here described. Ten years ago I extracted the upper central and lateral incisors, and the first bicuspid. The incisors were so elongated that they could not be concealed by the upper lip and were most unsightly. They were not so loose as usual in pyorrhœa at that stage, and seemed surrounded within the wasted sockets by dense fibrous tissue. The bicuspid was looser. Since the extraction of these teeth the disease has not shown itself in any part of this patient's mouth. She wears artificial teeth on a suction frame, and the mucous membrane of the mouth retains a perfectly healthy aspect. The patient is of robust constitution, with teeth of first rate structure, and she is perfectly free from any organic disease. She has three children, born at intervals of two years, and it was at the commencement of the child-bearing period that the affection of the teeth showed itself. Previously, with exception of a few carious cavities filled in early life, she had not had dental troubles of any kind.

Local treatment of true pyorrhœa in my hands is confined to thorough removal of tartar, to mopping the necks of the teeth and the pouch of gum around them to its depths with antiseptics and use of antiseptic lotions. I invariably insist upon the necessity of attention to the general health, but I need hardly add, I do not undertake that attention myself.

I am, Sir, yours faithfully,

SENEX.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION

A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 4.

APRIL 15, 1892.

VOL. XIII.

Partridge v. The General Medical Council.

THE recent decision of the Court of Appeal in this case has evoked an amount of public comment for which at first sight it is very difficult to imagine any adequate reason. While many of the leading organs of public opinion have acquiesced in the very lucid exposition of the case which fell from the lips of the learned judges, not a few have apparently misunderstood the nature of the point at issue, and have wandered off into discussions of advertising in the abstract. It would be presumptuous in this Journal to suppose that anything appearing in its pages could make plain the issue to those able writers who failed to gather the facts from the decision itself. The ability of many of the writers is so obvious that we can only suppose that they prefer to discuss questions that were not before the Court of Appeal, but which lend themselves more aptly to make amusing "copy." If this be so it is very

natural, for anything less interesting to the world in general than the bare facts of this case it would be difficult to conceive. The General Medical Council decided that to break a solemn undertaking was disgraceful conduct; the Court of Appeal unanimously upheld that decision. The question before the General Medical Council and the courts of law was not whether advertising was disgraceful, but whether the breach of an engagement was so. We will quote from the judges themselves.

Lord Justice Fry said :—" I say nothing as to whether mere advertising is disgraceful conduct, as the point is not before us," adding " but my silence must not be considered as saying that it is not."

Lord Justice Lopes said :—" The plaintiff violated his solemn undertaking, and I am of opinion that this was clear evidence upon which the Council ought to find him guilty of disgraceful conduct in a professional sense. As to whether mere advertising would be such conduct, I do not dissent from the expression of opinion given by the Master of the Rolls."

It is the almost universal result of the growth of learned pursuits and callings that a large proportion of the members associate together for the definite purpose of advancing the welfare of their calling. Such associations, while conferring privileges upon their members, exact pledges in return, and those who enjoy the former must not violate the latter. Most of such associations or guilds expressly forbid their members who hold their diplomas to advertise their merits and methods. Advertisement being little more than personal boasting, it is universally regarded by the learned professions as an unbecoming manner of attracting practice. It is perfectly open to anyone to remain outside such guilds and pursue his calling as he pleases, so long as he does nothing contrary to the law of the land, but it is

not open to him to share the benefits of the guild and violate its rules at the same time. No one compels a man to adopt a calling, or to enter into undertakings; he does so being of full age to appreciate the responsibilities involved, deliberately and of his own free will. Where then is the grievance?

Nothing could be clearer or less open to misunderstanding than the judgment, and we are glad to see that the greater proportion of the lay press have seen the matter in its true light, while much that has been written on the other side may be safely attributed, rather to the necessity of producing smart "copy," than to anything of the nature of serious opinion; and after all it would be a dull world if sober-sided fact were perpetually invading the domain of amusing periodical literature.

Dental Legislation at the Cape of Good Hope.

THE recent "Medical and Pharmacy Act" of the Cape of Good Hope is of a very comprehensive character, making provision not only for the licensing and registration of medical practitioners and dentists, but also of apothecaries, chemists, midwives and nurses.

The part relative to dentistry is naturally interesting to us, and the colony is to be congratulated upon the character of the clauses. The point of great interest is that the Medical Council is to consist of seven medical practitioners and one dentist, the latter being nominated by the Governor.

The power of the dental member is set forth in a separate clause. He is entitled to attend all the meetings, and if a qualified medical practitioner, has a right to join in the discussion and vote upon any question or matter, but if not so qualified he is only entitled to discuss and

vote on matters relating to "dentistry or dental surgery," and also has the right to vote for the election of some other member as President of the Council.

Subject to the exceptions contained in Section 17, no person can now practise dental surgery unless he has obtained a licence signed by the Colonial Secretary on the recommendation of the Council, who must satisfy themselves upon the authenticity of the diplomas and certificates submitted to them by the candidate for the licence.

Regulations in regard to these diplomas are to be made by the Council, and it is required that such diplomas shall furnish a sufficient guarantee that the holder possesses the requisite knowledge and skill for efficient practice as a dentist. Another point in which this Act varies from other similar legislation is to be found in the clause providing that a female shall be able to qualify as a medical practitioner, dentist, &c., &c. But, perhaps to us who have seen the workings of a similar Act of Parliament for rather more than a decade, the most salutary innovations will be found in Section 35, which we regard as sufficiently important to warrant its quotation verbatim :—

"Any person who shall wilfully and falsely pretend to be, or take or use the name or title of physician, doctor of medicine or dentist or any name, title, addition or description implying that he is licensed or registered under this Act, or that he is duly qualified to practise as a physician or dentist and any person who shall practise as a medical practitioner or dentist without such license as aforesaid, shall be liable to a fine not exceeding one hundred pounds for each offence, and in default of payment he shall be liable to be imprisoned with or without hard labour for a period not exceeding six months, unless such fine be sooner paid.

"And no person who is charged with a contravention of

this section for practising as a dentist or chemist and druggist without a licence shall be acquitted by reason of the fact that he is in the employ of, or is agent for, a person duly licensed to practise as aforesaid, unless he is under the actual personal supervision and control of some duly licensed dentist, or chemist and druggist as the case may be."

The first part of the clause certainly specifies in a detailed fashion restrictions which may render evasion of the Act a difficult matter, but it is not always the most detailed Act that is most difficult to evade, and a general statement sometimes covers more ground than a detailed one.

Our readers will notice that the latter part of the clause is specially framed to restrict the offence familiarly known as "covering."

Other clauses refer to the interpretation of terms, provision for registration, &c., all of which are to a great extent similar to like provisions in other Dental Acts.

ASSOCIATION INTELLIGENCE.

Meeting of the Representative Board.

A MEETING of the Representative Board took place on April 2nd.

PRESENT: F. Canton, Esq., President, in the chair; Messrs. J. Ackery, W. H. Coffin, D. Hepburn, W. Hern, S. J. Hutchinson, L. Matheson, Laurence Read, J. H. Reinhardt, S. Spokes, C. J. Boyd Wallis, F. Henri Weiss, W. H. Woodruff, and W. B. Paterson, Hon. Secretary (London); E. L. Dudley (Bath); J. Dennant and J. H. Redman (Brighton); G. Cunningham and R. P. Lennox (Cambridge); M. Johnson (Chester); Morgan Hughes (Croydon); R. T. Stack (Dublin); W. B. Macleod (Edinburgh); J. M. Ackland and H. B. Mason (Exeter); G. Henry (Hastings); Caleb Williams (Leamington); G. Brunton (Leeds); G. G. Campion (Manchester); I. Renshaw (Rochdale); W. E. Harding (Shrewsbury); E. Apperly (Stroud); and T. E. King (York).

The Minutes of the last meeting were read and signed.

Letters regretting inability to attend were received from Messrs. J. A. Biggs, W. Campbell, C. Wheeler, Morton Smale, and Williamson.

A letter was read from Mr. Smith Turner acknowledging the vote of condolence passed to him at the last meeting.

The following recommendations from the Business Committee respecting Bye-Law 18 were submitted to the meeting, the same having been previously circulated on the printed agenda lists :—

“The Business Committee, in view of any ambiguity in Bye-Law 18, suggests the following explanatory standing order until the Bye-Laws are reconsidered, viz. :—

“‘Ten Members of the Representative Board shall retire annually. The vacancies thus created shall be filled at the Annual General Meeting in the following manner :—

“‘It shall be the duty of each branch to nominate candidates for election, and any member of the Association may be nominated by not less than six other members. *All candidates, however, must be eligible according to the Bye-Laws.* All nominations in future must be received by the Hon. Secretary not less than thirty days before the Annual General Meeting. Retiring members of the Board shall be eligible for re-election.’

“The Business Committee also suggests that the Hon. Secretary be authorised to issue voting papers to the members of the Association as soon as possible after the nominations of the candidates for election have been received, returnable seven clear days before the Annual General Meeting, and that the voting papers returned be examined by the President of the Representative Board in the presence of the Treasurer and Hon. Secretary ; and in the event of either one or more of the three examiners named being unable to attend, their places shall be filled by members selected from the Business Committee, the result of the ballot to be announced at the Annual General Meeting.

“The form of voting paper and return envelope, recommended by the Business Committee, is herewith enclosed.”

Mr. REDMAN proposed and Mr. REINHARDT seconded that the same be accepted.

Mr. KING desired an alteration of the bye-law in favour of branches electing members to the Board.

Mr. BRUNTON proposed : “That in the opinion of the Representative Board it is desirable that the branches should have the power of electing members of the Representative Board instead of merely nominating candidates for election, and that the Business Committee be requested to frame a bye-law on these lines, and submit it to the next meeting of the Board with a view to its being brought before the Annual Meeting in August next.”

Mr. MACLEOD seconded this, and in doing so, said that he could not acquiesce in all that he had previously heard from the supporters of Mr. Brunton’s motion. Personally he drew no distinction between

London and Provincial men on the Board, nor did he consider that the London men dominated the Board in any way. He was, however, in favour of the principle of election by the branches embodied in the motion, and therefore supported it. To what extent the representation of the branches should be carried was a matter, he considered, requiring considerable care, and should be so dealt with by the Business Committee. There was such a thing as getting too much branch representation. It should never be forgotten that the headquarters of the Association were in London, as also must be of necessity the chief business and its executive officials; and in any representation on that Board, London men should be well represented. He would like to see a third of the Board consisting of branch representatives.

Mr. WEISS considered the branches would become over-represented, and the Board unwieldy in numbers.

Mr. CUNNINGHAM was in favour of the Business Committee's recommendation as far as the voting by ballot was concerned, and hoped it might be tried this year. He was also in favour of election by the branches of their representatives.

Mr. CAMPION and Mr. MATHESON also spoke in a similar strain to the last speaker.

Mr. DENNANT preferred the condition of affairs as it had hitherto existed. The suggestions before them savoured too much of running candidates for election on lines somewhat similar to those of town councils, and which he thought might with advantage be avoided in a scientific body like the British Dental Association.

Mr. SPOKES approved of both propositions before the Meeting, and hoped a vote would be taken on the Business Committee's recommendations first.

Mr. HUTCHINSON pointed out that Mr. Brunton's proposals committed the meeting to nothing, as, the principle being stated, the Business Committee were appealed to to consider it and report upon the details in connection with it.

Mr. HERN wished to know if proportional representation was asked for by the branches.

Mr. BRUNTON said it was the principle of branches electing their own representatives that was in question.

Messrs. ACKLAND, HUGHES and RENSHAW also spoke, and it was decided that vote by ballot as recommended by the Business Committee should obtain this year, and Mr. Brunton's motion was carried.

The TREASURER then presented the appended 'Annual Balance Sheet of the Association, which had been approved of by the Journal and Finance Committee. He alluded to the satisfactory state of the subscriptions, and also to the economy exercised in the items of the general account, more especially the comparatively small sum for the important annual meeting held in London, and explained the method of reducing the goodwill of the Journal asset annually.

THE BRITISH DENTAL ASSOCIATION.

Dr.										RECEIPTS AND EXPENSES ACCOUNT FOR THE YEAR ENDED DECEMBER 31ST, 1891.										Cr.																			
GENERAL ACCOUNT.										GENERAL ACCOUNT.										GENERAL ACCOUNT.																			
To Rent (one year)	...	...	...	...	...	...	...	...	...	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.																		
" Secretary (one year)	...	...	...	...	...	...	...	...	...	30	0	0	...	...	...	873	13	0	...	...	...															
" Audit of 1890 Accounts	...	...	...	...	...	...	...	...	...	50	0	0	...	...	...	...	...	...	...	...	...									
" Legal Expenses <i>v.</i> Goodman, Hawkins and others	...	...	...	...	...	...	...	...	...	5	5	0	...	...	...	291	4	4	...	...	...															
" Expenses of Annual Meeting	...	...	...	...	...	...	...	...	...	87	19	3	...	...	...	47	12	0	...	...	...															
" Donation to the International Congress of Hygiene	...	...	...	...	...	...	...	...	...	99	7	11	...	...	...	...	...	...	338	16	4																		
" Stationery and Printing	...	...	...	...	...	...	...	...	...	20	0	0	...	...	...	...	...	...	...	...	534 16 8																		
" Postages, Directories, Registers, Gratuities and Sundries	...	...	...	...	...	...	...	...	...	54	9	7	...	...	...	...	...	...	...	...	8 2 7																		
ASSOCIATION JOURNAL ACCOUNT										38	3	1	ASSOCIATION JOURNAL ACCOUNT.										...	...	...											
To Printing and Publishing	...	...	...	...	...	...	...	...	...	558	6	11	385	4	10	...	...	...	291	4	4																		
" Reporting at Branch and Annual Meetings	...	...	...	...	...	...	...	...	...	38	18	0	...	...	...	...	...	...	...	...	52 9 1																		
" Odontological Reports	...	...	...	...	...	...	...	...	...	8	8	0	...	...	...	...	...	...	...	...	305 10 8																		
" Salaries, &c.	...	...	...	...	...	...	...	...	...	105	11	2	...	...	...	...	...	...	...	...	649 4 1																		
To Balance on General Account	...	...	...	...	...	...	...	...	...	157	14	5	711	4	1																								
Less Deficit on Association Journal Account	...	...	...	...	...	...	...	...	...	62	0	0	...	...	...																					
																				By Interest on Deposited Sum (£500) at the London and County Bank																			
																														</									

BALANCE SHEET, 1ST JANUARY, 1892.									
Dr.	£ s. d.			£ s. d.			Gr.		
To Balance from last Account	727	13 8	...	...	...	...	88	3 7
" Balance brought down	95	14 5	...	...	...	...	500	0 0
To Creditors:				823	8 1				
Due to Treasurer	0 15 9	...	...	...	...	588	3 7
Messrs. Bowman and Crawley-Boevey
(Solicitors)	66	4 7	...	...	...	...	357	4 5
Messrs. Bale & Sons (Printers)	136	11 1	...	...	...	...	129	3 6
				203	11 5		...	47	12 0
								81	11 6
								£1,026	19 6
								£1,026	19 6

His report was received and adopted.

Mr. RENSCHAW stated that the Council of Owens College, Manchester, had kindly given the use of their fine building to the Midland Branch for the Association's Annual Meeting in August, 10th to 13th next; and as an outline of the social programme it was proposed to hold a reception

On Wednesday evening, August 10th, under the auspices of the Midland Branch and Manchester Odontological Society.

On the Thursday evening a conversazione would be held.

On Friday the annual dinner would take place, and

On Saturday afternoon a garden party or pleasure excursion, &c., as yet not decided upon, would be given by the President-elect, Mr. Quinby.

Mr. CAMPION pleaded for the loan of models of irregularities of the teeth by members for the Museum, to be collected for the Annual Meeting.

Other matters of business were transacted and the proceedings terminated.

Metropolitan Branch.

AN ordinary meeting was held at 40, Leicester Square, on Thursday, 31st ult. In the absence of the President and President-elect, Mr. C. J. Boyd Wallis, the treasurer, was voted into the chair. The Secretary read a letter with regard to the forthcoming meeting at Manchester, and sincerely hoped that Metropolitan members would not be behindhand in sending models and specimens of irregularities to the Loan Museum.

Mr. PATERSON explained that the museum contemplated was intended to illustrate irregularities of the teeth as regards size, number, form and position only, as a special branch of dental surgery, and particularly irregularities in position; which might be taken under two heads, viz., irregularities in the arches, *e.g.*, V-shaped arch, anterior projection of upper and lower teeth, non-occlusion of front teeth, &c., and irregularities in the individual teeth, *e.g.*, teeth inside and outside the arch, twisted incisors, protruding canines, &c., and in addition the results of extraction of the six-year molar either for decay or crowding generally of the teeth, or crowding in the incisor region. He hoped members of the branch would look over their models and specimens, and assist in forming a loan collection which would be of scientific and practical value to the Association generally. Notes of the cases sent, and apparatus worn during treatment would be welcome. Great care would be taken of the specimens sent to Manchester, by the local committee, and its Hon. Sec., Mr. Campion, and others, who would personally supervise

the careful repacking, and return during the week following the meeting. The cost of transit per return would also be defrayed, and details of the method of sending would be found in Mr. Campion's letter in the March BRITISH DENTAL ASSOCIATION JOURNAL. Mr. Paterson hoped that if a good collection could be obtained, opportunity would arise for a valuable discussion on certain sections of the subject, and in conclusion requested members willing to help to communicate with Mr. G. G. Campion at Manchester as soon as they conveniently could, as it was desirable to have the collection in hand for arranging, &c., some time early in July.

The CHAIRMAN asked whether specimens might be sent without the method of treatment.

Mr. PATERSON replied in the affirmative.

Mr. H. BALDWIN showed his modification of Bing's root-trimming forceps. Bing's instrument was very useful for removing enamel round the edge of a root and for slightly coning the same, excepting the interstitial edges of upper bicuspid roots. As these are more frequently crowned with a collar crown than any other tooth the present modification was devised to meet the case of these interstitial edges. Besides being suitable for use in the ordinary way these forceps are fitted with metal cups, by means of which a bearing can be obtained from the next tooth. This removes the centre of the are described by the blade, when in use, to a greater distance than when the bearing is taken from the nerve canal of the tooth being operated upon, and by means of the greater sweep thus obtained the blade is rendered efficient to work upon the interstitial edges of upper bicuspid roots. The rods bearing the cups are easily interchanged, and in addition there is a rod with a sharp point which acquires a firm hold in a small nerve channel, and is therefore useful in many cases where the large bur-ended rod of Bing's instrument is unsuitable.

A second instrument shown was a plug-trimmer, which Mr. Baldwin said was useful for trimming all fillings except amalgams when set. It was designed for gold, cohesive and non-cohesive, and for tin, or tin and gold. It consists of a thin T-shaped blade set in a flattened ebony handle. The arms of the T are sharpened to a chisel edge on both upper and lower margins. The trimmer thus cuts by both pushing and pulling, and is both right and left without change. It is easily kept sharp, and is especially useful for cervical edges.

The next was a cement-filling remover, which consisted simply of a very sharp elongated pyramid set on to a shaft at an angle of something more than 135° . The instrument was made nearly as hard as an enamel chisel, and was used by pushing it into a cement filling at an angle with the surface, and Mr. Baldwin claimed this cracked the filling in all directions, removing large flakes with great ease.

He also showed Mr. Parris's impression tray for crowns, saying that Mr. Parris, a student of the Dental Hospital of London, deserved great

credit for so useful an invention. The tray now shown was a slight modification of the original, with shields rather narrower than in that sold by the depôts, and the connecting wire placed in the centre of the shields, instead of nearer one side. This made the same instrument available for all parts of the mouth, instead of requiring one for the right and one for the left.

Mr. DENISON PEDLEY made remarks upon the "Collective Investigation of School Children's Teeth," as reported on another page.

The CHAIRMAN agreed that there was a large amount of suffering amongst poor children; he had seen something of it in a school to which his brother was medical officer.

Mr. CUNNINGHAM discussed the matter from a scientific point, showing how certain teeth might be pre-disposed to decay.

Mr. BEADNELL GILL said he gave four days a year to see 500 children of the lowest Irish class. He would like to see a sample copy of the revised version of the recording book alluded to, but he was afraid of the work.

Mr. HENRI WEISS gave his experience of work done at Barnardo's homes at Ilford in 1878.

Mr. H. LLOYD WILLIAMS asked how the chart mentioned by Mr. Cunningham showed predisposing causes of caries as against the actual cause.

Mr. CUNNINGHAM mentioned as examples the fissures in the molars, and the existence of caries in second temporary molars, as predisposing the permanent molars to attack.

Mr. GREETHAM alluded to the appointment of a dental surgeon to the North Surrey District Schools in 1884.

The CHAIRMAN then called upon Mr. W. B. Paterson to narrate a "Case of a Tooth Pulp, exposed by Caries, treated and found alive one year and nine months afterwards."

Mr. PATERSON apologised for bringing before the meeting so small a casual communication, but as it was an item of recorded fact he thought it might be received for entry in their proceedings and possibly be of some small scientific or practical interest, or both, to members. Another reason for mentioning it was, as a set off to the *role* of beggar he had just appeared in, before them on the museum question.

The case was that of a man aged about thirty, who came as a patient for one visit only on the eve of leaving England for several months, on July 8th, 1890, with a left upper second molar carious on its crown surface, and the pulp practically exposed to the action of food and fluids in the mouth. The patient had suffered pain on and off for three or four days previously, but not violent pain. The tooth was important for masticatory purposes as the first molar and second bicuspid were lost on that side. On examination after a preliminary excavation, a pin point exposure of the pulp was

plainly visible, and on gently removing the softened dentine about it an exposure of pin's-head size was obtained without causing hæmorrhage. The pulp was of bright red colour, fairly glossy looking, and a very slight oozing of serum was apparent on absorbent cotton wool when applied for a short time to it. He hesitated between extraction and saving the tooth under such circumstances. The patient was of too sensitive a kind to be subjected to the pain of immediate pulp destruction by instrument, and there was not sufficient time to remove it under an anæsthetic like "gas," probably requiring two administrations for the purpose. He therefore decided to try and save the pulp; but entered the case as doubtful in his notes, although the pulp appeared to be only inflamed superficially on the limited surface visible. The pulp was freely washed with tepid water, the rubber dam applied, and then the cavity dried with absolute alcohol, a dressing of iodoform in fine powder mixed with absolute alcohol, was quickly applied as a paste on a lightly rolled small pellet of wool to the pulp. A concave metal cap was placed over the dressing, to keep it in contact with the pulp, avoiding pressure on it and the surrounding thin dentine floor, and over all oxyphosphate cement. The patient left to return in nine months, if all well, for a permanent filling.

March 30th, 1892.—Patient returned complaining of toothache, which developed two days ago, and was increasing in amount, in this same tooth. The previous history was one of comfort and freedom from any pain or twinge whatever since July 8th, 1890, so that he had forgotten all about the tooth. Examination showed cement worn down exposing cap, and leakage taking place around cap. The cavity was rendered shallow by the closeness of the lower bite, by the way, and hence there was no great quantity of covering cement at any time for so much masticatory use as tooth had been put to.

The remainder of the filling was removed and also cap. The wool dressing showed dark staining of leakage, but the odour of the iodoform was well marked. On removal of the wool the pulp underneath began to bleed furiously. The hæmorrhage was staunched and the pulp appeared soft and highly vascular. It was insensitive on the surface to the light touch of a fine probe, but on piercing it about 1-12th of an inch, it was distinctly sensitive and again bled copiously. Arsenious acid terminated the particular interest of the case altogether on this occasion.

The CHAIRMAN remarked upon the unsatisfactory results of treatment of exposed pulp, and was doubtful as to the practice of capping; he himself had now given up trying to save them, and his method was invariably to devitalize.

Mr. CUNNINGHAM could not agree with such a suggestion; he had many cases of capping pulps, and only the day before had made a large gold filling over a pulp which he had just treated in that way.

Mr. B. GILL asked whether in Mr. Paterson's case the pulp had been previously exposed. He thought, too, that it made a difference as to the kind of dentine which covered the pulp. He mentioned a case of a bicuspid where he had applied iodoform to the pulp through a distal cavity, but on drilling afterwards from the front he observed no penetrating effects of the drug on the rest of the pulp.

Mr. D. PEDLEY quoted some cases in which iodoform had been very useful where the pulp had quietly died, and mentioned a case of extreme longevity of the pulp in a root, the crown of which had been cut off nine years previously, to allow of an artificial plate being worn.

Mr. CLARK asked what drug Mr. Cunningham used? Which was the best?

Mr. CUNNINGHAM said he did not know; he was now using sulphate of copper.

Mr. PATERSON, in replying, said the exposure in this case was the result of caries; and he wished it to be understood that his usual practice had been, and still was, to devitalize in cases like the one he had instanced, but circumstances compelled otherwise, as he had stated. He agreed with Mr. Pedley's observations as to quiet death of pulps under strong antiseptics like iodoform. He had seen several *post-mortems* establishing that point. Mr. Cunningham had, he feared, slightly misunderstood his point, which was, not that the case was novel at all, but simply that it was one of recorded fact, under given conditions. Although perchloride of mercury was now more often his favourite dressing in treating dead teeth, he had not given up iodoform by any means. He had never seen the staining of teeth by iodoform alluded to by Mr. Cunningham, and he presumed that he was referring to perchloride of mercury, which was capable of staining a tooth inky blue or black in a week if used in strong solution, and with steel instruments when operating on the crown of it.

Mr. W. R. HUMBY showed models illustrating the effects of certain fillings. He also presented a molar with a combination filling on an approximal aspect: amalgam at the cervical and lower part of the cavity, and gold above.

This gave rise to a good discussion, and in reply to Mr. L. Read, Mr. Humby said the filling was all put in at the same time. In reply to Mr. Paterson, he said the gold used was Smale's, and in reply to Mr. Reinhardt, that he had used a strap matrix.

The SECRETARY said Mr. H. C. Carter wrote that he was prevented attending by illness, but he had sent a neat little apparatus for disinfecting excavators and burs, which was on the table for inspection.

The CHAIRMAN thanked those members who had contributed matter which had led to such excellent debate, and in closing the meeting mentioned that the Council had appointed a sub-committee with the view of arrangements being made for practical demonstrations at the next meeting.

West of Scotland Branch.

A GENERAL MEETING of the West of Scotland Branch was held on 31st of March at 8 p.m. in the Library of the Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow. Mr. John Turner read a paper on "Continuous Gum Work," which will appear in our next issue. In behalf of Dr. G. Cockburn Smith, who has for some time been acting as anæsthetist at the Glasgow Dental Hospital, the Secretary, Mr. Wallace, read a paper on the "Physiological Action of Nitrous Oxide," which will also appear in our next issue. Both papers were favourably received and criticised by the Society, and special votes of thanks accorded to the authors for favouring the Society with their valuable contributions.

Midland Counties Branch.

ANNUAL MEETING OF THE ASSOCIATION.

THE MUSEUM.

The 9th July will be the last day for receiving specimens from members resident in the United Kingdom. Cases containing specimens should be addressed, Geo. G. Campion, the Owens College Medical Department, Coupland Street entrance, Manchester. The names and addresses of senders should also be placed in small letters on the cases.

Specimens which have not the names of their owners firmly attached to them will not be admitted to the Museum. Three kinds of labels—for tubes holding teeth, for models, and for pieces of apparatus—have been prepared and will be forwarded to any member of the Association by the Secretary of the Museum Committee, on receipt of a post-card stating the kinds of label and the number of each required.

All specimens lent for the Museum will be returned to their owners in the week following the meeting, and the packing will be personally superintended by the Secretary and two or three other members of the Museum Committee.

The above arrangements have been made to obviate any danger of loss or damage to specimens lent, and if specimens are properly labelled by their owners there need be no fear of their prompt and safe return.

It has been decided to make a special point of cases showing the results of extraction of the six-year molars. In order to show the articulation, models will be prepared in the manner adopted by Dr. Davenport in illustrating a paper read before the New York Odontological Society in 1887. The method is shown in the accompanying



Fig. 1.

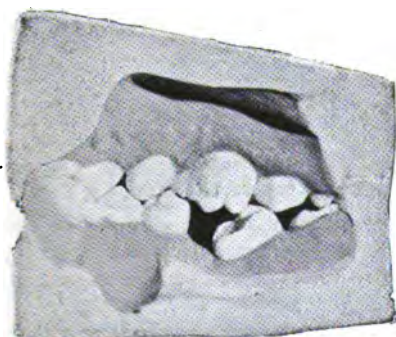
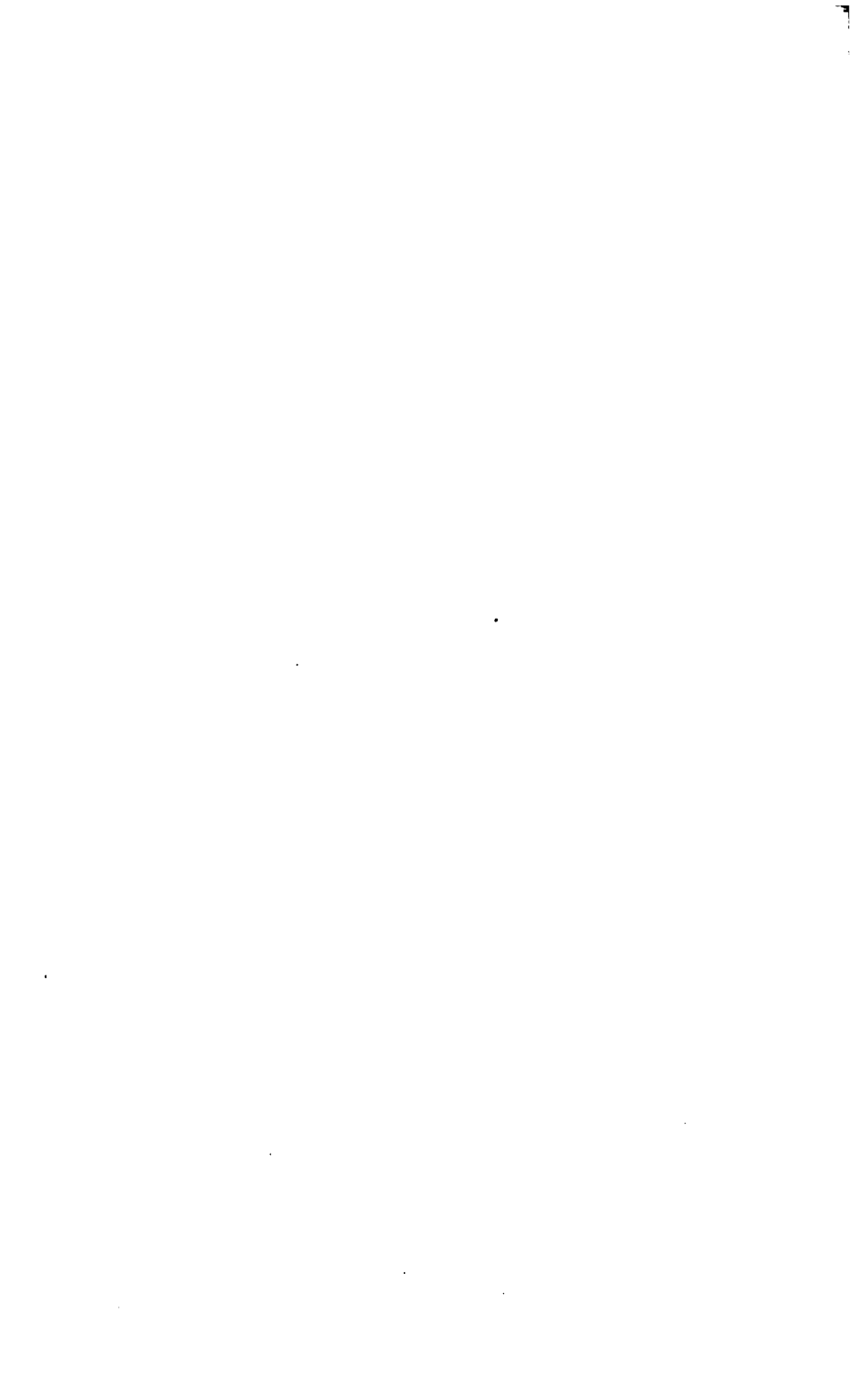


Fig. 2.



photographs. The two models, upper and lower, are fastened together by a batter of plaster behind the wisdom tooth on each side, and then divided through the middle line. So prepared, they show the articulation of the molars perfectly. In fig. 1 the upper and lower molars were both removed at the age of eleven years and ten months, the second molars being at that time fully erupted. In fig. 2 the lower molar was removed at about the age of eighteen, and the upper left. It is believed that a large series of models prepared in this way will throw some light on the question of extracting these teeth, and perhaps point to some conclusion as to the age at which they should be removed, where such removal is inevitable. In taking impressions of such cases it is, of course, necessary to ascertain as nearly as possible the age at which the teeth were removed, and, if possible, the position of the twelve-year molar at the time, whether unerupted, partly erupted, or fully erupted and antagonising with its opponent.

Models can be made to look most effective by painting the gums pink with a mixture of vermilion and white. Water-colour should be used for this purpose, and the models should *not* be dipped in stearin before applying it. They should afterwards be varnished with a thin spirit varnish. This plan was shown me recently by the President of the Irish Branch and Dr. A. W. W. Baker.

GEO. G. CAMPION,

Hon. Secretary Museum Committee.

Western Counties Branch.

THE next meeting of the Council of this branch will be held at the Castle Hotel, Dartmouth, on Saturday, April 30th, at 3 p.m. At its conclusion it is proposed to hold an informal meeting of members, at which it is hoped that cases and subjects of interest will be brought forward and discussed.

HENRY B. MASON, *Hon. Sec.*

Eastern Counties Branch.

THE Annual General Meeting will be held at Cambridge, on Wednesday, June 22nd. President, R. Payling; President-elect, G. Cunningham.

Gentlemen willing to read papers, or who are otherwise willing to assist at the meeting, will oblige by communicating with the Hon. Secretary, W. A. Rhodes, 53, Trumpington street, Cambridge.

ORIGINAL COMMUNICATIONS.

Fractures of the Maxillæ.*

By J. F. COLYER, L.R.C.P., M.R.C.S., L.D.S.Eng.

IN dealing with this subject it will be convenient to consider it under two heads :—(1) Fractures of the lower jaw ; (2) Fractures of the upper jaw.

(1) *Fractures of the lower jaw.*—Probably from its exposed position, fractures of this jaw are more common than those of the upper. The principal causes giving rise to the accident are kicks from horses, blows from the fist, falls especially on the chin, and gunshot injuries. Such rare causes as fits of coughing are recorded in Gross's "Surgery" (p. 964). It may be caused by undue violence during extraction, though direct transverse fracture arising in this way is rare, but fracture of the alveolus, though commonly occurring, is of little importance, nothing more serious than the exfoliation of the portion so fractured taking place.

The fracture is generally single, but occasionally is double, triple, or comminuted, the latter generally occurring in gunshot wounds and severe accidents, such as the passage of a heavy vehicle over the jaw. From a surgical point of view, the fracture may be simple or compound—simple in the case of the ascending ramus, compound in that of the horizontal.

The position of the fracture depends partly upon the situation in which the blow is received, and partly upon any predisposing cause that may be present, such as the loss of teeth at certain points.

Fractures of the horizontal ramus are far more common than those of the ascending (Hamilton recording 40 out of 43 cases). When occurring in the former region, the neighbourhood of the canine is by far the most frequent situation, principally owing to the fact that the depth of the canine socket considerably weakens the bone at this spot. The region of the mental foramen and symphysis are other common situations, and next to these, perhaps the most usual is the region of the last molar. Statistics, however, seldom entirely agree on these points.

The direction of the line of fracture is usually oblique, though

* A paper read at a meeting of the Southern Counties Branch, February 20th, 1892.

when occurring at the symphysis it may be quite vertical. It may be horizontal, involving the alveolus of several teeth, and a severe case of this character is mentioned by Tomes,* in which a fracture running level with the apices of the teeth and carrying the bicuspid, canine, and incisors, had occurred in an attempt by a chemist to extract a first lower molar on the right side.

Fractures of the ascending ramus may occur in nearly any situation, and are generally the result of great violence, the angle, and condyloid process being frequent seats of the injury; more rarely the apex of the coronoid process is fractured.

The symptoms of fractured jaw are generally well marked when occurring in the horizontal ramus, in the ascending, on the other hand, they are often obscure. In the former the patient usually complains of pain on opening the mouth. There will be distinct crepitus, mobility in the continuity of the part, and frequently alteration in the line of the teeth due to displacement. In addition to this, there is very often more or less salivation, and, in some cases where the displacement is great, an inability to close the mouth.

The displacement which takes place varies according to the character and situation of the fracture. When single, and occurring for instance, through the canine region, the lesser fragment generally overlaps the greater, the temporal muscle, and still more the masseter, causing it to be drawn in a downward, outward, and slightly forward direction. In addition to the action of the muscles the obliquity of the fracture also assists in bringing about the displacement. In double fractures through either canine region the small or median fragment is generally displaced downwards and backwards by the depressors of the lower jaw. In those far back in the region of the last molar the smaller or posterior fragment is drawn upwards and inwards towards the median line, probably by the action of the pterygoids and temporal. (This displacement was extremely well marked in a case under my care recorded in the *Transactions of the Odontological Society*, January, 1892.)

Fractures of the ascending ramus are generally accompanied by much swelling, but present little displacement. Pain is, as a rule, referred to the fractured part, and, by passing the finger of one hand well back in the fauces and applying the other outside,

* "Dental Surgery," 3rd ed., p. 623.

crepitus may generally be obtained. In severe cases the upper fragment may be tilted forwards by the action of the temporal muscle. In fracture about the angle the pain is often referred to the wisdom tooth or mental foramen, and when the soft parts are much swollen the fracture may, unless care be taken, be altogether overlooked. Fractures of the condyle are generally accompanied by some pain and a difficulty in moving the affected side, while crepitus may be apparent to the patient. The condyle may be drawn forwards on the eminentia articularis by the external pterygoid, and this displacement can be felt by the finger inside the mouth. In these cases the chin is turned a little towards the affected side, not from it, as in the case of unilateral dislocation of the articulation—an important point in the differential diagnosis.

Complications occasionally arise, such as severe wounds of the face, especially the lips, hæmorrhage from laceration of the soft parts, or even tearing of an artery. In one case within my recollection a traumatic aneurism formed, which necessitated ligation of the common carotid. Dislocation and fracture of the teeth may occur, and paralysis and neuralgia may follow, arising from injury to the inferior dental nerve, or implication of it in the callus. Dislocation of the articulation and injury to the base of the skull are rare. More or less necrosis of the ends of the fragments leading to abscess also occurs, and lastly, salivary fistula may supervene.

Fractured jaws as a rule do very well under treatment, generally requiring a splint to retain the fragments in position for about six weeks. Occasionally union is delayed, or does not take place. The causes leading to this result are practically the same as those giving rise to un-united fractures in other parts of the body. Of these the principal one in the lower jaw is probably necrosis (which produces at times a considerable space between the fractured ends), unusual difficulty in treatment, slipping of a tooth or some foreign body between the fragments, and want of rest due to a badly-adapted splint.

In un-united fractures one or two things generally happens, either a "false joint" is formed, or a development of fibrous tissue—"fibrous union"—takes place between the fractured ends.

For treatment various methods are adopted, the simplest being a four-tailed bandage, and to this a splint of guttapercha forms a valuable adjunct.

The splint should be lined with chamois leather, and have

several holes made in it to allow of evaporation. The parts should be also sprinkled over with some dusting powder,* as this assists in preventing decomposition.

The guttapercha splint and bandage are useful as temporary measures, and may be used permanently with advantage where there is no displacement; but an interdental splint is always to be preferred. The objections to the bandage and its adjuncts are these:—

(1) To apply them, it is necessary to bind the lower tightly against the upper, and accordingly prevent mastication, &c.

(2) When there is any tendency to displacement they do not overcome it.

(3) In oblique fractures they cause the fragments to overlap by the pressure applied from without.

(4) In necrosis they tend to contract the jaw.

Of interdental splints there are three patterns which deserve attention, viz., the Hammond or wire splint, the Hayward and Kingsley class and the Gunning, each being useful in its proper place. The first step to be taken is to obtain an impression of the lower and upper jaw. This is not always a simple operation, and at times it is necessary to take it in half trays, providing the upper affords a sufficient guide as to the articulation. Wax is the best material to use, requiring little heat to moisten, and is soft and easy to remove. If wax is not to hand composition does equally well, only it is advisable not to allow this material to become hard before removal from the mouth. There are those who invariably take their impressions in plaster, but there is no advantage to be gained by this proceeding.

When cast, the lower should be divided at the line of fracture, and the fragments pieced so that the bite can be carefully adjusted with the upper. By this means the contour of the lower is obtained, the fragments reunited in their new positions, and to the corrected model so obtained the required splint can be made. The Hammond, or interdental wire splint is an excellent method in suitable cases. It is made by bending up soft iron wire and adapting it as accurately as possible to the model, the wire run-

* A useful formula is as follows:—

Zinci oxidi	} aa 3iij
Pulv. Amyli	
Acidi Boracici, 3j	

Fiat pulv.

ning on the lingual and labial sides of the teeth, the end being joined by soft solder. Some fit the wire in the mouth, but, unless great haste is necessary, this seems a needless proceeding.

When ready the fragments are brought into position, and the splint placed over them, the teeth being fixed to the splint by means of ordinary iron binding wire.

The method of passing the wire is as follows :—Give the end of the piece to be passed a slight upward curve, then passing it from without over the top of the outer bar with a downward direction, bringing it under the inner bar, and having the forefinger of the left hand ready to feel for the point, return it over the inner bar and bring it out under the outer, twist the two ends together and bend them down under the bar. The reason for passing the wire over the bar at the outset is, that if it is passed under the outside bar, in returning, the wire will have to be passed under the inner bar, which is by no means as easy as returning it over the bar. By giving the wire a slight upward curvature as suggested, it not only makes it easier to pass, but also lessens the risk of pricking the side of the tongue. Mr. Newland Pedley, in order to overcome the chance of traumatic inoculation from pricking of the finger by the wire, has devised two pairs of forceps, with suitable curvatures, and also a spoon-shaped spatula, this latter assisting in protecting the mucous membrane of the mouth, in reflecting light, and directing the tip of the wire upwards.

Before applying the splint it should always be seen whether the teeth are free from tartar, and if not they should be scaled. When there are plenty of teeth standing, those adjacent to the fracture should not be wired, as it only tends to aggravate any inflammation that may be present. Again, it is not needful to wire each tooth ; every other one is generally sufficient.

After applying the splint, it is well to see the patient within a week as the wires generally require slightly tightening. An antiseptic mouthwash should be prescribed, and the patient directed to rinse the mouth frequently.

A useful modification of this splint is much used at Guy's Hospital, and is extremely useful where the lesion is anterior and the displacement is not great, to quote Mr. Newland Pedley's words,* "The main strand is not passed behind the last tooth, but

* *Trans. Odonto.*, Vol. xvii., new series, p. 16.

between two teeth on each side of the jaw in the following manner. The point of the wire is sharpened by being divided obliquely with cutting pliers, and passed into the cavity of the mouth between the bicuspid and the more posterior, and is brought out again by being pressed from the lingual surface, between two teeth on the opposite side of the jaw. The intervening portion now lying on the tongue is manipulated into close contact with the lingual surface of the necks of the teeth. The wire is then carried across the labial surface of the teeth, and its ends twisted loosely together. It is not desirable to twist up the main strand very tightly at first, for so doing would impede the passage of the binding wires, and tend to drag away the strand from the lingual surface of the teeth. The binding wires are passed in the usual way and twisted together loosely at first. Finally, all the wires are twisted tight, a few turns being given to first one and then another; the ends are cut short and tucked under the splint to avoid excoriation of the mucous membrane. Rarely should a binding wire be attached to a tooth immediately contiguous to the line of fracture." A rather useful way of fastening the ends of the main strand is to pass the main wire through a piece of closely fitting metal tube and give the ends a turn in the opposite direction.

The *Hayward Splint*, sometimes known as a Kingsley, consists of a vulcanite cap fitting the teeth in the sides of which iron wires are fixed in such a way, that when in position the wires come outside the mouth. This wire should be about one-eighth inch in thickness, should curve well up as it emerges from the mouth to avoid rubbing the lips, &c., and should terminate at the angles of the jaw. It is as well to solder on two points, one towards the front and another towards the back of the wire, the front one preventing the bandage slipping forward (a constant trouble), while the back one is also useful for fixing the bandage when you require pressure about the angle.

These splints are generally made loosely fitting, and then filled with some form of guttapercha (Gilbert's temporary for preference). This ensures a perfect fit and is especially useful in cases of children where the teeth are generally thin and sharp, or where one is not quite certain of getting the fragments back into perfect apposition. When ready for insertion the guttapercha should be thoroughly softened, the displacement reduced as much as possible, and the splint forced into position. A compress of some kind is then placed under the chin, and the whole fixed with an inch

bandage. In bandaging care must be taken to see that it does not slip too much forward. With children, especially if the operation is likely to prove at all painful, it is as well to administer an anæsthetic. The jaw in this class of splint is fixed between the vulcanite cap inside the mouth, and the bandage outside.

The *Gunning splint* consists of vulcaite caps fitting both upper and lower, joined together by supports. These caps can be filled with guttapercha as described above. When the splint is in position a four-tailed bandage is applied, and the jaw is, therefore, practically fixed between the upper, with the intervention of the splint and the bandage outside.

The choice of a splint will depend to a great extent upon the merits of each individual case. A fracture occurring in a mouth containing plenty of firm teeth, and in such a way that each fragment contains a few, a Hammond is undoubtedly best. Its advantages are the small amount of inconvenience to the patient in the way of mechanical contrivances, the perfect rigidity which can be obtained between the fragments, the non-interference with speech and mastication and the ease with which the parts can be kept clean and the therefore small risk of necrosis.

Its use is contra-indicated first when there is much downward displacement, especially if the teeth are very short, or loose, and secondly in children, unless the temporary teeth are healthy and firm. In these cases a Hayward splint may be used with advantage, and also where there are but few teeth standing, or the smaller fragment only contains one or two teeth.

This splint is very successful in keeping the fragments at rest, but has the disadvantage of interfering with the patient at night when attempting to lie on the side. Many discard it for this reason and use a Gunning, but the advantages are, we think, more than counterbalanced by the fact that in the case of the Hayward splint the jaw is moveable, and therefore speech and mastication can be carried on.

The most suitable cases for a Gunning splint are (1) those where there are no firm teeth in either fragment; (2) edentulous cases; (3) where the fracture is behind the wisdom or last standing tooth; (4) where both upper and lower are fractured.

Among the disadvantages of this splint may be mentioned:—(1) The closure of the mouth, leading to suspension of speech and mastication; (2) the dribbling away of saliva; (3) the great fatigue

from propping open the jaws ; and (4) the difficulty of keeping the splint and mouth clean.

In the treatment of horizontal fractures involving the alveolus of two or three teeth, a cap of gutta-percha or vulcanite is quite sufficient, or the fragment may be wired to adjacent teeth. In more severe cases a Hammond splint (or a modification of one) is perhaps the best.

In fractures about the angle an outside guttapercha splint should be made in such a way that it passes back and catches the angle. The splint can be kept in position with a four-tailed bandage, but whatever method of bandaging is used endeavour must be made to get firm pressure over the part of the splint covering the angle, as this will assist in keeping the parts at rest by preventing the splint shifting. One generally finds that after a period of about a week it is necessary to remodel the splint. Almost invariably there is considerable swelling about the parts, and as this subsides the splint naturally ceases to fit.

Fractures of the ascending ramus, condyle, or coronoid process are best treated by simply keeping the jaw fixed.

(2) *Fractures of the upper jaw.*—Fractures of the upper jaw generally arise from severe violence, such as kicks from animals, gunshot wounds, &c. They are frequently comminuted, adjacent bones, such as the malar and nasal being often at the same time implicated. Transverse fractures involving the entire separation of the alveolar process from the body of the bone have been recorded on a few occasions, the fracture sometimes communicating with both antra and the nasal fossa. In a recent case mentioned by Messrs. Ackery and Paterson,* the fracture (caused by a severe blow on the left side of the face) commenced to the left of the infra-orbital plate, passed transversely across the bridge of the nose and ended on the opposite side, about half an inch above the alveolar border. The whole upper jaw could be moved *en masse* in a downward direction, and also laterally to the right as if "hinged" above the alveolar border on the right side.

Separation of the two maxillæ in the median line has also been recorded. Lastly, fracture of portions of the alveolus, and at times of the tuberosity occasionally occur during the extraction of teeth.

The complications encountered are to a great extent similar to

* *Trans. Odonto.*, Vol. xxii., new series, p. 65.

those in the lower jaw, but the hæmorrhage is generally more severe, and at times the infra-orbital nerve becomes permanently injured.

The treatment of fractured upper jaw does not differ in principle from that of the lower. Teeth, unless very loose should be retained, and the same course should be pursued with fragments of bone, since the parts are so vascular that there is every chance of good repair taking place. In cases involving the alveolar plate of several teeth a Hammond splint is quite applicable. The Hayward and its modification are of little use, but the Gunning is far more useful, and especially so where both jaws are implicated.

The Collective Investigation of Children's Teeth,*

By R. DENISON PEDLEY, F.R.C.S., L.D.S.

MR. PRESIDENT AND GENTLEMEN,—I desire to bring before your notice this evening the important subject of the collective investigation of children's teeth, now being carried out by our Association. It is the first time, so far as I am aware, that this matter has been brought before the Metropolitan Branch, and it is with a view of enlisting the sympathy of my fellow-members that I do so now.

Pardon me, if I briefly repeat the main objects of the investigation, and at the same time answer the question so frequently put to us, "What is the good of it all?"

(a) We are collecting an enormous number of facts which will be found of immense benefit to members of our profession in the future.

(b) We are proving to the medical profession that there is a vast amount of preventable disease which hitherto has not been recognised, which *when recognised* by them they are not slow to co-operate with us in seeking a remedy.

(c) We are showing those who have the care of the children in all our schools and institutions throughout the country, that it is absolutely necessary to appoint dental surgeons to such schools and institutions as an important means of improving the condition of the children, thereby helping them to become healthier and better citizens of this vast empire.

* Read at a Meeting of the Metropolitan Branch in London, on March 31st, 1892.

As far as the value of the statistical record is concerned, I will leave that to other members who are better able to deal with it, and will confine myself to bringing forward evidence of the statements (b) and (c).

In *The British Medical Journal* of March 26th there is to be found the following leading article :—

DENTISTRY IN SCHOOLS AND THE PUBLIC SERVICES.

For some years the British Dental Association has been calling attention to the neglect of the teeth of pupils at district, infirmary and other public schools where the children of the poor are educated, with the desire that skilled attention shall be provided for the teeth of all children under the care of such public bodies.

The appointment of skilled dental surgeons would lead to diseases of the teeth which exist in such schools being adequately dealt with, and a large amount of both local and general suffering prevented. Messrs. R. Denison Pedley and Sidney Spokes, acting on behalf of the British Dental Association, anxious to provide this Association with statistics upon which it can take action, asked and received permission to examine the mouths of the 1,000 children at the Central London District Schools at Hanwell, and at the request of the Board of Management have furnished a report which is now before us. The number of teeth examined amounted to some 20,000, and the statistics occupied four months in compilation. Of the temporary teeth 1,119 required stopping and 745 extracting; of the permanent teeth 1,222 required filling and 271 extracting; there were, therefore, as many as 3,357 unsound teeth present in the 903 mouths examined, while over and above this eighty-three mouths required the teeth to be regulated by mechanical means. There were only 137 mouths in which the dentition was sound.

It has been proved beyond cavil that much pain and suffering is spared those children whose teeth, whether temporary or permanent are treated and carefully watched during the period of teething and early life. The following observations and suggestions are made in the report :—

“There is an increasing recognition of the importance of a systematic care of the teeth, apart from any æsthetic consideration.

the case of children, who during the growth of the body have not merely to maintain nutrition, it is surely a matter of urgency that all the organs of digestion should be kept in a state of functional integrity, and if, as seems to be the case, diseases of the digestive tract are increasing, it is evident that any departure from the normal dentition places the child and the future adult at a disadvantage. Instead of waiting until a child suffers pain, and thus directs attention to a decayed tooth, it is far better for both patient and operator that the

earliest appearance of caries should be noted, and the progress prevented by a regulated system of inspection and prompt treatment. Under such circumstances dental disease and the necessity for painful operations become reduced to a minimum, and at the same time the function of mastication is retained in accordance with what is now recognised as the most beneficial practice. Referring once again to the figures, we would point out that 766 children have between them 3,357 unsound teeth, 1,222 of which are permanent teeth requiring filling. This points the way so clearly that we have no hesitation in recording our opinion that a duly qualified dental surgeon should be appointed to your school, and, after careful consideration, we append the following suggestions with reference to such an appointment:— That in order to cope with the disease of the teeth at present existing in the school, it is advisable that the dental surgeon should attend once a week (morning and afternoon) for at least two years. That an inspection of the children's mouths be so arranged that each would be examined twice during the year, new cases being seen at the first visit after their arrival. That a record be kept of all operations performed at each visit, and a report presented to the Board. That the Board should pay a salary of at least £100 per annum for the first two years, and provide the following: Dental chair (say), £7 10s.; dental engine (say), £7 10s.; stopping materials (say), £5 (annually)."

These suggestions will command the general support of the medical profession, and bodies charged with the care and welfare of children would do well to appoint dental surgeons.

In addition to the work above referred to, we understand that the British Dental Association has also called attention to the neglect of the teeth of soldiers and sailors, particularly recruits. In the army we understand that no steps have yet been taken, but some naval surgeons, at the suggestion of Director-General Dick, are acquiring dental experience at the various general and dental hospitals, with a view to subsequently educating naval surgeons in this department of practice. This is a step in the right direction, but it is not sufficient. Skilled dental surgeons should be appointed at all recruiting stations and training ships, because a course of instruction extending over a few months cannot prepare the general surgeon to treat the manifold varieties of dental lesions. The recognition and discovery of early caries is very essential, and this is only obtained, like skill in any other department, after much experience. We venture to hope that both departments of the services will shortly make the necessary alterations in their methods of dealing with the dental troubles of both soldiers and sailors.

In *The Medical Press and Circular* of March 23rd is the following leader:—

AN INQUIRY INTO THE CONDITION OF THE TEETH OF SCHOOL CHILDREN.

In May of last year permission was asked on behalf of the British Dental Association to examine the mouths of the children in the Hanwell Schools, and the Board of Management of the Schools in question sanctioned the request on condition that they were furnished with a report of the results of the inquiry. The examination was commenced in August last, and finished by the end of December; 903 children were carefully examined, and a note made of every tooth in each child's mouth, as the result of which a record was obtained of about 20,000 teeth. The inquiry was conducted by Messrs. R. Denison Pedley and Sydney Spokes, and their report, which is before us, is both interesting and important, showing as it does the great need which exists for systematic supervision and attention—with respect to the teeth of children—in these schools. The statistics to which the report alludes are somewhat startling. For example, the authors point out that there are no less than 1,864 temporary teeth which require attention, while out of the total number of children examined, namely, 903, there were only 137, or 15 per cent., whose teeth were sound and called for no interference on the part of a dentist. Again, among 766 children there were 3,357 unsound teeth, 1,222 of which were permanent teeth requiring filling. The authors draw attention to the fact that in order to cope with the disease of the teeth at present existing in the schools it is advisable that a dental surgeon should be appointed, and attend once a week, morning and afternoon, for at least two years. With this suggestion we cordially agree; the report is a most important contribution to the subject with which it deals, and the facts having thus been strongly brought under the notice of the managers, they would do well to act upon the advice which has been proffered them.

As evidence of the interest of the medical profession, the above-mentioned articles are encouraging.

You may very well imagine that after all the trouble we have had in making out a report, we were anxious to know the result. I am happy to say that on careful consideration the managers have decided, by a large majority, to appoint a dental surgeon to the Hanwell Schools, on the basis of the report presented, subject to the approval of the Local Government Board.

The following is the opinion of *The Medical Press* on the appointment :—

DENTISTS : A NECESSITY, NOT A LUXURY.

Dentistry is undoubtedly the most useful and the most reputed of the departments of specialised surgery. The idea that the care of the

teeth might safely be confided to the extractive mercies of the family medical attendant has long since been exploded, and of late years people of the middle classes of society have more and more availed themselves of the services of the skilled dentist. At the last meeting of the Board of Management it was decided to appoint a paid dentist to attend to the teeth of the children in the Hanwell Parochial Schools, and few persons will be disposed to find fault with an innovation so conducive to comfort and health. There still survives an impression that a dentist is a luxury, but it is not so long since that the importance of attending to the eyesight of school children has come to be generally recognised. The dentist will probably do more to procure relief from suffering and to promote health than even the optician, and we cannot but applaud the new departure.

These extracts from the press sufficiently illustrate the statements (b) and (c), and lucidly answer the question, "What is the good of it all?"

Such results, however, are not attained without some sacrifice. My colleague, Mr. Sidney Spokes, and I disclaim entirely any intention of bringing our names prominently forward in this matter. We were asked for a report, we gave it, and the result is beneficial to the British Dental Association. Now, gentlemen, we want help. We are aware that the members of other branches of the British Dental Association are working in the good cause. We believe, after an extensive experience, that this work is one of the most beneficial, and therefore most important, that the British Dental Association has ever undertaken, and we do not want our Branch to be behind in carrying it out. You will probably ask, "Where can we find the material?" Well, I will tell you. There are in London and its suburbs, some sixteen district and parochial schools. The number of children is over 10,000. Two of those schools, Southall and Hanwell, we have already examined, and we have just completed our arrangements for carrying out the examination of some 1900 children at Sutton. There is any amount of work still to be done, and in conclusion we earnestly beg of you to help us both by personal service and with money. *The Charities Register and Digest* may be consulted, and there you will find all the information you could desire with regard to every parochial and district school in London.

LEGAL INTELLIGENCE.

Supreme Court of Judicature.

COURT OF APPEAL.

(Before the MASTER OF THE ROLLS, LORD JUSTICE FRY, and LORD JUSTICE LOPES.)

PARTRIDGE v. GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.—This was an application by the plaintiff, H. F. Partridge, for judgment or for a new trial on appeal from the judgment of Mr. Justice Denman, who entered judgment for the defendants at the trial before him with a special jury, without taking the opinion of the jury. This action was brought for a writ of *mandamus* to compel the General Medical Council to restore the name of the plaintiff to the Dental Register. Under the Dentists Act, 1878 (41 and 42 Vict., c. 33), the Medical Council are directed to keep this register. In 1878 the plaintiff obtained his diploma as a licentiate in dental surgery from the Royal College of Surgeons, Dublin. He was then required to declare that he would not seek to attract business by advertising or by any practice considered by the College to be unbecoming, and he agreed on this being proved the diploma should be cancelled. In December, 1878, he was duly registered by the defendants under the said Act. In 1882 the plaintiff became totally blind and was unable personally to discharge his duties; he, however, founded an institution called "The South Kensington Ladies' Dental Institution and Association," and advertised his name in connection with such institution. In June, 1886, the General Medical Council decided to erase the plaintiff's name from the dentists' register. Mr. Partridge then applied for a writ of *mandamus* to compel the defendants to restore his name; this was granted by Mr. Justice Mathew and Mr. Justice A. L. Smith on June 15, 1887, and affirmed by the Court of Appeal on August 1 (see 19 Q.B.D., 467). Subsequently the plaintiff brought an action for malicious prosecution, claiming damages and failed (see 25 Q.B.D., 90). Proceedings were again commenced in October, 1887, to remove the plaintiff's name from the register, and the name was removed on November 25, 1887, and it is in respect of this removal that the present action was brought. By section 13 of the Dentists Act, 1878, it is provided—"The General Council may and upon the application of any of the medical authorities

shall cause inquiry to be made into the case of a person alleged to be liable to have his name erased under this section, and on proof of such conviction or of such infamous or disgraceful conduct shall cause the name of such person to be erased from the register." One of the causes referred to therein is "being guilty of any infamous or disgraceful conduct in a professional respect." Under section 15 the appointment of a permanent committee to ascertain the facts of any case is provided for.

Mr. WILLIS, Q.C., and Mr. A. BEDDALL appeared for the appellant and submitted that there was evidence to go to the jury to show that the Council had not properly exercised their powers under the Act. The Council have only power to remove the name "on proof" of the disgraceful conduct in a professional respect. They have no discretion until evidence has been given which in the opinion of the Court is evidence from which they can reasonably come to such a conclusion. Here there was no such evidence. [LORD JUSTICE LOPES referred to the case of "Allbutt v. General Medical Council" (23 Q.B.D., 400).] That was under a different Act—21 and 22 Vict., chap. 90, section 29—and the words are essentially different. The Court is not to inquire if the inference is properly drawn, but there must be some reasonable evidence upon which they could act. Powers of this sort must be watched, otherwise disabilities would be created. [LORD JUSTICE LOPES.—Would it not be disgraceful conduct for a barrister to advertise?] We often see notices in the paper that a barrister has joined a particular circuit, and conduct very like advertising. The charge is not that he advertises in England; many dentists on the register do this. [The MASTER of the ROLLS.—I hope this is not so. I should desire to see the dental profession in the same high position as other medical men.] Another point is that there was one person—namely, Mr. Macnamara—who was in the position both of accuser and judge. Mr. Macnamara was the representative of the Royal College of Surgeons, Dublin, on the Medical Council in England, and he acted both in setting the college in motion and in adjudicating on the charge when made. Again, Mr. Partridge was not heard or summoned to be present at the Council. From the above facts an inference of malice may fairly be drawn. The following cases were also cited:—"Leeson v. General Medical Council," 43 Ch. Div., 366; "Reg. v. Allen," 4 B. and S., 915; "Reg. v. Milledge," 4 Q.B.D. 332.

Mr. R. T. Reid, Q.C., and Mr. Muir Mackenzie, for the respondents, were not called upon.

The COURT dismissed the appeal.

The MASTER of the ROLLS, in giving judgment, said: In this case a person, whom I shall call a professional man, has been summoned to appear before a body of which he has become a member. An Act of Parliament has authorised him to be put upon a certain register, and thereby he obtains certain position and benefits. This Act says that if this body, who are a domestic forum, should find him guilty of any infamous or disgraceful conduct in a professional respect they have a right to strike him off the register. They have done this here. Some time ago the plaintiff brought an action against this body for maliciously striking off his name, and he failed. Now he brings an action partly for a *mandamus* and partly for damages. The greater part of the argument has been directed to the first part of that claim. There is really no evidence on which any one can say these gentlemen were actuated by anything like malice. As to the action for a *mandamus*, all we have to see is whether the body against whom the *mandamus* is asked had jurisdiction to do what they have done. It has been alleged there was no evidence before them which would give them jurisdiction. The Council were acting under section 13 of the Dentists Act, 1878. The plaintiff had, on obtaining his diploma in Ireland, promised not to advertise while holding that diploma. That body considered that they should act fairly by each other, and ought not to advertise. Just as in our profession, where all are rivals against each other, a barrister is not allowed to advertise his superior talents or that he will do his advocacy cheaper. I think if he did so I should consider it such disgraceful conduct that he ought to be immediately disbarred. No one need become a member of the dental profession unless he desires it. I say the authorities—this domestic tribunal—have a right to determine if it is within reason whether the conduct is or is not disgraceful professional conduct. In Ireland the defendant had promised not to advertise, and, having given that promise, according to his own evidence, he had spent more than £10,000 in advertising. This is his admission, and he continued to advertise after he had received a warning from the college in Dublin. This must be evidence of disgraceful conduct in a professional respect, and ample evidence upon which the Council might exercise jurisdiction. A *mandamus* cannot,

therefore, go to them ; they are not a Court and no rules are binding on them ; under section 15 a committee is appointed. Fault cannot be found with them, unless you can show that what they have done is contrary to natural justice. I agree it is contrary to natural justice to impose a penalty without letting a man know the accusation and without giving him an opportunity to meet it. It is said the Council did not give the plaintiff notice, but this is frivolous in this case, for a letter was written to the plaintiff telling him that his case would be considered on a particular day, and asking him to send any written defence he might desire or to attend in person, or both. He declines to attend, and we are told his reason was that there was no dispute as to the facts. Another point has been taken. It is said there was one person who was accuser and judge ; it is against natural justice that an accuser should be also the judge. He must be both accuser and judge, and it has been argued that Mr. Macnamara was both these in the present case. When you look at the facts no one can truly say he was the accuser. The rule of law is well laid down in "*Leeson v. General Medical Council*" (43 Ch. D., at p. 384), as follows :—"It must be in all cases a question of substance and of fact whether one of the judges has in truth also been an accuser." That is to distinguish it from mere technicalities. There is no evidence here that in fact Mr. Macnamara authorised or directed that this accusation should be brought. He received a letter from the secretary to the Council in England, and the inference is he handed it to the persons who acted upon it. As to being a judge, it is not shown that he was present at the Council at the time the report of the committee was dealt with. Something was also said about his being interested. Even if he acted in Ireland when the college decided to withdraw the diploma, and also in England, even on the same evidence this would not show that he was interested. As Mr. Justice Denman has pointed out, the Judge who tried a case might also sit and hear the case in the Exchequer Chamber, and afterwards, perhaps, also in the House of Lords. On no one possible ground can the objections taken be maintained. This Court cannot interfere even if they thought the Council had come to the wrong conclusion. I cannot part with this case without saying that, so far from doubting as to whether they were right or wrong, I am perfectly certain they were right. The appeal must be dismissed with costs.

LORD JUSTICE FRY :—One of the duties of the Medical Council is to keep the register required by the Dentists Act, 1878, and by that Act it is provided that, on the application of any of the medical authorities, the Council shall make enquiries into the case of any one liable to have his name erased. The Royal College of Surgeons in Ireland is one of those medical authorities. The plaintiff here, notwithstanding his promise to the college which granted him his diploma, habitually advertised and continued to do so after being warned by that college. This was, in my opinion, disgraceful conduct in a professional respect. This was the accusation made against him, and the facts are not in dispute ; and yet the plaintiff comes to us to say there was not a tittle of evidence that he was guilty of disgraceful conduct. I say nothing as to whether mere advertising is disgraceful conduct, as the point is not before us ; but my silence must not be considered as saying that it is not. There is one point to which I must advert. Mr. Willis made a statement with regard to the Bar which I was surprised and grieved to hear. If what he suggested is true I think it is high time that such things should be brought to the notice of the Inns of Court. As regards Mr. Macnamara, I will only point out that the law is distinctly laid down by the majority of the Court in "*Leeson v. General Medical Council*." I do not think there is any evidence here that Mr. Macnamara was in any sense the accuser. I agree that this appeal must be dismissed.

LORD JUSTICE LOPES.—But for the fact of this being an important case I should not add a word. In this case these facts are all admitted. The plaintiff undertook not to attract business by advertising, or any other conduct which would be considered unbecoming by his college. It is admitted that in violation of this he has largely and extensively advertised, and this after repeated warnings. A *mandamus* can only go if there was no evidence upon which the Council could reasonably act. If there were evidence the decision of the Council is final and conclusive. They are the sole judges. The plaintiff violated his solemn undertaking, and I am of opinion that this was clear evidence upon which the Council ought to find him guilty of disgraceful conduct in a professional respect. As to whether mere advertising would be such conduct, I do not dissent from the expression of opinion given by the Master of the Rolls. I must also add that I have heard with great pain certain words uttered by Mr. Willis as to the conduct of some members of the Bar. I can only believe that he

is mistaken. I feel sure that any one guilty of such conduct would, if he were brought before the Benchers, meet with such punishment as he would rightly deserve. I think here that the plaintiff had ample notice that his case would be considered, and I do not think that there is any evidence that Mr. Macnamara acted both as accuser and judge.—*Times*.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odontological Society of Great Britain.

THE ordinary Monthly Meeting of this Society was held on April 4th, Mr. DAVID HEPBURN, L.D.S., vice-President, in the Chair. There was a good attendance of members, and several visitors.

The CHAIRMAN announced that the President was prevented from attending owing to illness. The minutes having been read and the reports taken,

Messrs. Palethorpe (Birmingham), Ellwood (Redhill), Cooksey (Worthing), were declared members, and Messrs. P. L. Webster, H. G. Forsyth, W. S. Holford, M. F. Hopson and G. Hern signed the obligation book and were admitted members.

Mr. C. W. WEST presented some antique dental instrument to the Society.

Mr. S. J. HUTCHINSON narrated a case of necrosis with fracture of the lower jaw. In February he was called to see a case in the wards of University College Hospital, and found the patient comatose with much swelling over the left side of the lower jaw. Examination revealed fracture of that bone. Some days later the patient died, and the following history was obtained. Severe pain had existed for some time in the region of the wisdom teeth, and he had consulted a dentist who had removed the second molar tooth, and subsequently the wisdom tooth. The next day the patient again called on the dentist, and while attempting to speak fell down in a fit. This was barely recovered from when he passed successively into others, and finally remained unconscious until his death. The necropsy showed a transverse fracture of the jaw, extensive necrosis of the ascending ramus of the jaw and a large abscess cavity which contained much foul pus.

Mr. Hutchinson did not think they had sufficient evidence before them to say how and when the jaw became fractured, he thought possibly during the unilateral spasms which accompanied the fits. He knew all would feel much sympathy for the gentleman in whose operating room so tragic an occurrence had occurred.

At a subsequent stage of the meeting Mr. Ionides, a House Physician of University College Hospital, at the request of the Chairman gave some additional facts concerning the medical history of the case.

The patient had had syphilis very badly, for which he had been unsuccessfully treated with iodide of potassium. He had also locomotor ataxy and advanced disease of his kidneys. The death was due to uræmia, the result of the Bright's disease.

The CHAIRMAN remarked upon the extreme importance of the case, especially as illustrative of the fact that the public often blamed dentists for accidents or untoward occurrences which were due to general and not to dental conditions. He insisted upon the great importance of having all such cases fully reported in the *Transactions*.

Mr. M. Y. WOOLF narrated a case of prolonged tolerance of a tooth in the nose. The patient, a lancer, suffered from a kick from a horse, damaging the soft tissues of the face and knocking out four teeth. Three years after the accident Mr. Woolf saw the man at the National Dental Hospital and found both bicuspid, left upper lateral, and canine were missing. The left lower canine was fractured, as were also the bicuspid, only roots remaining. The soft parts were greatly contracted by cicatricial tissue, but a distinct opening was found, which led into the antrum, admitting the end of the little finger; this was situated in the position of the second bicuspid. The left central and right central incisors were both dead, the former was also very loose, but only maintained in position by soft tissue. There was a discharge from the nose, pus trickling into the pharynx when the patient lay down, and these signs together with the antral fistula were taken to indicate the presence of a foreign body in the antrum. Upon exploring that cavity, a hard substance was found in the horizontal position, and this was removed. Upon examination this was found to be the second bicuspid denuded of membrane, but with a highly vascular piece of tissue attached at one point, which was composed of gum tissue. The main feature of interest about the case was the tolerance of the tooth by the mucous membrane of the antrum.

Mr. A. W. BARRETT gave a communication upon the electrical illumination of the mouth in the diagnosis of antral disease. He said a patient had been referred to him for tapping an antral empyema by his colleague, Mr. Hovell. He found an edentulous upper jaw with the exception of a second molar and a small stump, which last he removed. He employed a powerful electric oral lamp and found complete translucency on both sides, and so he and others of his colleagues believed no empyema could exist, an opinion which was communicated to Mr. Hovell. However, as that gentleman adhered to his original diagnosis, the left antrum was punctured and a quantity of pus was liberated, demonstrating the uncertainty and unreliability of the electric lamp in diagnosis of antral disease.

Mr. C. S. TOMES then read a paper entitled, "Studies on the

Growth of the Jaws." He referred to a collection of models in the Museum of the Royal College of Surgeons, prepared by the late Mr. Merryweather, and consisting of a very complete set of models of the same mouth, beginning at the age of four and continuing up to the age of twenty-one, the models being taken at short intervals during all the earlier years, and at longer ones during the later period of the term. In the first edition of his "Dental Surgery," Sir John Tomes had pointed out that it was possible, by a series of measurements of a large number of children's jaws to ascertain in what directions increase took place. The most important generalisation then drawn was that in the region of the jaws occupied by the twenty temporary teeth very little growth or change subsequently takes place, so that the incisors, canines, and bicuspid ultimately occupy an arch which hardly differs either in size or shape from that occupied by their predecessors. So that, in the treatment of irregularities, whether threatened or accomplished, no improvement due to growth in this anterior region of the mouth can be hoped for. The proofs adduced upon this point have been based upon measurements of dried jaws, or else are averages taken from a number of children and a number of adults. But several possibilities of fallacy exist in such averages—*e.g.*, it is difficult to be certain that the children and the adults belonged to the same grade of society, as the former would probably be gathered in some institution. Again the children giving the smallest measurements may be puny and stunted, and few of them survive to be represented amongst the adults.

Sir John Tomes's research was conducted principally upon the lower jaw. In his study of this series of models, the reader of this paper addressed himself to the upper jaw, to get the best check upon the older observations. The points for measurement were chosen so as to be applicable also to models and macerated jaws.

For width the distance between the middles of the grinding surfaces of the second temporary upper molars was taken, and afterwards that of the second upper bicuspid. For length the distance was taken from the middle of the back edge of the grinding surface of the second temporary molar to the centre of the back of the neck of the central incisor of the same side, at the point where the gum joins it. The results were given in a table.

Summarising the facts obtained, it was found that in the region occupied by the temporary teeth, there was from the age of 4 up to 15 not quite a millimetre gain in length and breadth. The mouth being somewhat crowded at the age of 15, the first upper bicuspid on the left side was extracted, with the result that at the age of 16½ the left length had fallen 2½ millimetres; the right measurement (no tooth having been extracted) also fell more than a millimetre, this diminution proving to be permanent. Examination of the lower jaw shows that there is no increase in the portion of the jaw occupied by the temporary teeth.

Mr. Charles Tomes then investigated the condition of the jaws as regards the growth in the anthropoid apes. Skulls of different individuals were obtained; fortunately the data obtainable by taking measurements from a good many individuals and averaging them are sufficiently striking. An examination of all the skulls in the College of Surgeons' Museum showed that in this respect, as in other points in its dentition, the chimpanzee comes nearest to man, though in it the growth in the region in question is marked enough.

In man there is practically no gain, but in the female chimpanzees there was 6 mm. in length, and 15 mm. in width. In the larger males there was 10 mm. in length, and 20 mm. in width.

The orang's jaws were also studied.

It seems, therefore, clear, that in the matter of the absence of growth in the anterior region of the jaw, man stands alone, the orang differing from him more than the chimpanzee, and the gorilla still more, gaining no less than 14 mm. upon an original measurement of 33.

In man, the suture separating the intermaxillary bone from the maxilla anchyloses early, and is no longer traceable. In the anthropoid apes it remains open, though in the chimpanzee it disappears more or less completely.

The growth from before backwards of the intermaxillary bones was diagrammatically represented and it was shown that in the chimpanzee it grows from 8 mm. to 14 in the female, and 19 in the male. In the orang from 11 to 15 and 18; in the gorilla from 19 to 22 and 27. The lengthening in the chimpanzee is enough to effect the whole increase in length forwards, but it is not so in the orang and gorilla, in which there must be growth on that edge of the maxilla itself, and a forward movement of the whole bone bodily. It was further found that from the period at which the deciduous teeth were all in place up to the period at which the first molar was cut, growth was most active.

As in man there is no growth in this direction, and in the chimpanzee less than in the orang and the gorilla, and this corresponds with the periods of obliteration of their intermaxillary sutures. Mr. Tomes considered it a fair inference that these facts were related as cause and effect.

Returning to the considerations of the models, Mr. Tomes said that the teeth were unfortunately not regular, so that the growth of the jaws was perhaps not that of a normal mouth. This was due to crowding, due partly to the upper incisors instead of taking their usual slight forward inclination, remaining vertical in that position which is accustomed to be regarded as appropriate to the temporary teeth, and this of course involved a slight loss of space; while the lower incisors, very soon after their eruption, rose up so as to touch the gum behind the uppers, and this, the uppers being too vertical, necessarily involved the lowers having a distinct lean backward. The

result of this was that it became necessary to extract a bicuspid on each side, so that there was at the last a material shortening of the measurements in the lower jaw.

In the table of measurements it was shown that after the age of 12 there is an inequality between the length of the two sides, and this inequality had established itself, although exactly the same teeth had been shed and retained upon the two sides. This was remarkable as later in life it would have been attributed to the extraction of a tooth upon that side. This arrangement seemed determined while the second bicuspid and the canines were still within the bones, and their predecessors still in place, possibly due, Mr. Tomes thought, to their position in their crypts. These teeth were late in being erupted, but their predecessors held the ground for them, and the second deciduous molar is actually bigger than its successor, so that their late eruption fails to account for it.

In conclusion Mr. Tomes emphasised two points (1) that the early attainment of its full dimensions by the anterior portion of the jaw is an essentially human character; (2) that in the study of irregularities a too mechanical view of their origin is to be deprecated; their origin is probably to be sought earlier than we are accustomed to look for it, and its more early recognition may perhaps help us to combat it more efficiently.

The CHAIRMAN, remarking upon the value of Mr. Charles Tomes' paper, said they must all be struck with the enormous amount of information which Mr. Tomes had derived from the careful study of a simple set of models, and this should encourage dentists to maintain similar records by models. He asked Mr. Tomes whether he could throw any light upon the question, what was the real seat of increase in an abnormally growing intermaxillary bone, as he (Mr. Hepburn) had regarded anterior protrusion as being largely due to some overgrowth of that bone.

Mr. CHARLES TOMES, in answer to questions from Messrs. J. F. Bennett, J. B. Paterson, A. W. Barrett, H. T. Reed, J. Ackery, W. Hern and the Chairman, said the persistence of the intermaxillary suture could not be accepted as evidence of the continuance of growth of the bone. He felt there was not sufficient evidence to show how far anterior protrusion was causally related with overgrowth of the intermaxillary bone.

The usual votes of thanks and announcements closed the meeting.

Dental Board of Examiners, Launceston, Tasmania.

A MEETING of this board was held to consider reports of the examiners upon the different subjects of the examinations under the Dentists' Act, 84 Vic., No. 30, at the Launceston General Hospital for the diploma in dental surgery and medicine. Dr. Maddox, chairman of the board, presided, and two candidates submitted themselves—namely, Messrs. A. Lucadou Wells, jun., and Louis Bernard Galvin. Mr. Lucadou Wells, hon. secretary, read the following report of the examiners:—In general anatomy (Dr. C. J. Pike, examiner) the marks assigned were—A. L. Wells, jun., 130 marks, passed with credit; L. B. Galvin, 100 marks, passed. In general physiology (Dr. W. G. Maddox, examiner) A. L. Wells, jun., obtained 60 marks in the written and 48 in the oral examination; L. B. Galvin, 80 marks in the written and 42 in the oral. In connection with the dental anatomy and physiology and chemistry and metallurgy papers set before the candidates at the last examination, the hon. secretary stated that in each of these special subjects the candidates had obtained sufficient marks to pass, one of them, Wells, having gained the highest number attainable. In dental physiology A. L. Wells, for written, gained 100 marks, oral 50; L. B. Galvin securing 80 for written, and 40 for oral. Dental anatomy—A. L. Wells gained 150 marks, L. B. Galvin 120. In chemistry and metallurgy, A. L. Wells, jun., secured 150, and L. B. Galvin 140 marks. The total result of the marking in the combined subjects shows that out of a possible 750 A. L. Wells, jun., obtained 688, and L. B. Galvin 602 marks, and the board of examiners passed both candidates in these subjects with credit. As we have previously notified there are two separate examinations of candidates for the dental diploma—the first on the subjects named above, after the student has completed his first year's course of study, attendance upon lectures, and hospital practice; and the second or final examination, which is held at the expiration of the student's second year of hospital practice, lectures, etc., consisting of the more practical part of the student's education, viz., surgery and pathology, general and special, materia medica, and therapeutics, and prosthetic dentistry. It was decided to send copies of the examination papers to the medical press in Victoria for publication, and to issue certificates to the successful candidates.

We have also received from Mr. Lucadou Wells the following, which will give a good idea of the standard required by candidates.

PAPER ON ANATOMY—TIME ONE HOUR.

- 1.—Describe the internal carotid artery.
- 2.—Where is the sphenopalatine ganglion situate, what nerves join it, trace the nerves coming from it to their termination.

3.—Describe the sub-maxillary region after the removal of the superficial part of the sub-maxillary gland and the mylo-hyoid muscle.

4.—What are the muscles attached to the eyeball, and what nerves supply them.

PHYSIOLOGY PAPER—TIME ONE HOUR.

1.—State the number, names and position in the mouth of the temporary and permanent teeth. Describe minutely the structure of a tooth.

2.—Give the structure and use of the salivary glands, their number and situation, and the active principle of saliva; and state what particular ingredient contained in food does the saliva specially act upon.

3.—Give the structure and use of the tongue, its nerve supply, and state upon what the sense of taste depends.

4.—Describe the process of respiration. In breathing what do we take in, and what do we give out?

5.—Describe the course of the blood through the heart and lungs.

In the General Anatomy and Physiology *vive voce* Examination the candidates were questioned on:—

1.—The names of the different bones of the body and their articulations.

2.—The names and position of the principle arteries, veins and nerves.

3.—The viscera of the head, chest and abdomen.

4.—The structure of the same.

5.—The structure and properties of the principal tissues of the body.

6.—The functions of digestion, absorption, circulation, respiration, secretion, motion and sensation.

7.—The surgical anatomy and physiology of the organs of mastication, deglutition, taste and articulation.

PAPER ON DENTAL ANATOMY AND PHYSIOLOGY.

TIME ONE HOUR.

1.—Describe the structure of enamel, cementum and dentine separately, and their connection with each other in tooth formation.

2.—State the number and describe the different movements of the jaws and give the names of the muscles which produce them, with the blood and nerve supply.

3.—What is the structure of the dental pulp, give its blood and nerve supply, also the structure of the periosteum and its nerve and blood supply.

4.—Describe an odontoblast and an osteoblast cell, of what do they consist and what are their functions.

5.—Describe the process of tooth formation. At what period of intra-uterine life is the first trace of dental development visible, state in what this trace consists.

PAPER ON DENTAL ANATOMY AND PHYSIOLOGY.

TIME ONE HOUR.

1.—Give the structure of the epithelium of the gums, with blood and nerve supply.

2.—Describe the condition of the teeth at six-and-a-half years.

3.—What is the chemical composition of saliva, mention the different glands which secrete it, where situated, name their ducts with openings of same, also the blood-vessels and nerves immediately connected with them.

4.—Give the names of the arteries supplying the upper and lower maxillæ; mention their source. Describe their course, and the veins by which the blood is returned.

5.—What pair of nerves supply the maxillary apparatus; give their origin, and mention separately those branches supplying the teeth of the upper and lower jaws.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Mouth-Breathing not the Cause of Contracted Jaws or High Vaults.

By DR. EUGENE S. TALBOT, OF CHICAGO.

MOUTH-BREATHING was unknown to the early races, and is not observed among the present pure races nor modern civilized races. This may also be said of the deformities of the maxilla and teeth.

In an essay upon the subject of "The Influence of Adenoid Hypertrophy at the Vault of the Pharynx upon the Development of the Hard Palate," read before the New York Odontological Society, November 16th, 1890, by Dr. D. Bryson Delavan, the author speaks of mouth-breathing as a cause of many deformities.

Other authors mention the fact, too, that sleeping with the mouth open produces tension of the buccinator muscle, causing the jaws to contract, and have suggested different theories by which that pressure brings about this peculiar form of deformity.

I will direct attention to a few facts as they have been presented to me in the constant study of deformity of the jaw and teeth for the past fourteen years, and you, gentleman, shall be the judges whether mouth-breathing has anything to do with contracted arches or not.

In the first place, let us consider the part involved. The superior maxillary bones are fused at the median line. The outer surfaces have upon their borders an alveolar process. The maxillary bones

proper are made up of tense, compact tissues, and are so arranged as to best resist force. They are also for the attachment of muscles and the resistance of force in masticating food.

The hard palate does not assume the normal shape until the twelfth year, or after the teeth are all in position. The vault may be high or low, ranging from one inch above the margin of the alveolar process between the second bicuspid and first permanent molar down to one-quarter of an inch from the same point.

The alveolar process is made up of soft, cancellated structure, and solely for the purpose of protecting the germs of the teeth before they have erupted.

From the time the teeth make their first appearance until they are finally shed, the alveolar process has developed and been absorbed three distinct times.

The buccinator muscle is composed of striated muscular fibres, and is therefore under the control of the will. Its function is for the purpose of compressing the air in the act of blowing, whence its name is derived, and also for the purpose of carrying and holding the food under the teeth during mastication.

There are many cases of contracted arches where mouth-breathing does not exist. Mouth-breathing frequently commences very early in life. Contracted jaws, on the other hand, never commence until the seventh, or eighth and sometimes the tenth year. Contracted arches are of two kinds,—namely, V-shaped and saddle-shaped. All the other varieties are modifications and blendings of these two kinds.

In the V-shaped arch, commencing at the first permanent molar, there is a gradual narrowing of the teeth and alveolar process towards the median line. There is also a protrusion of the teeth and alveolar process, and not the jaw.

In the saddle-shaped arch the bicuspid is carried inward, and the deformity is invariably situated between the first permanent molar and the cuspid. The contracted hard plate is always associated with the V-shaped variety.

In mouth-breathing the lower jaw usually drops only sufficiently for the passage of the same volume of air as would pass through the nasal cavity, which is only about half an inch. Old people often sleep with the mouth open, and frequently to the fullest extent; but this deformity of the jaw and teeth never occurs after the eruption of the teeth, say the twelfth or fifteenth year.

As to the buccinator muscle, it extends anteriorly to the first bicuspid only, and therefore it can produce no effect upon the V-shaped variety of deformity, in which is also found the contracted vault.

For years it has been demonstrated by dentists in regulating teeth, that it is very rare for the apices of the roots of teeth to move when pressure is put to bear upon the crowns of teeth for the purpose of regulating them. This being the case, teeth having no roots are less liable to move than teeth with short roots like the lateral incisors and bicuspid. Since in the moving of a tooth the greatest change which takes place is at the neck, it stands to reason that the greatest absorption and deposition of bone takes place at that point.

I have shown that the first permanent molar and the teeth posterior to that are never involved. I have also shown that the centre of the muscle in both directions is located at this tooth. How is it possible,

since all the teeth are covered by the muscle upon one side, that half are carried inward and the other half remain normal?

Again, if mouth-breathing is the cause of contraction, both sides must contract alike, which never occurs.

The pressure of the tissue upon the crown of teeth is not sufficient to affect the alveolar process through the roots of the teeth, but even if it could modify those spongy structures, its force would stop there, and would not extend to the osseous vault, bending it out of shape.

The changes which take place in bone are not the bending in at one place and forcing out at another, but are an absorption and deposition of bone at the point of pressure.

It would be as impossible to produce pressure sufficient to break the dental arch as it would be for the weight of a building to break the arch of a door or window.

The V-shaped arch can never occur upon the lower jaw if the teeth articulate normally, because these teeth strike inside of the upper, and are thus prevented from moving forward. If we take three thousand models of the upper jaw, and arrange them in groups according to the forms here represented, and then examine very closely the arrangement of the teeth in each group, we will be unable to find any two alike in any group—thus showing that any external force acting upon the root from the outside could not possibly be the cause of contracted vaults.

The maxillary bone never protrudes in front of this class of cases. It is only the alveolar process which is carried forward by the projecting teeth. The only tissues involved in those deformities are the teeth, on the one hand, and the alveolar process on the other.

It would be useless for any one to say that mouth-breathing is the cause of one case of V-shaped arch in every twenty, and that some other cause produces the rest of the deformities. We must have a law which will work in all varieties of contracted arches.

The following table will explain the difference in the height of vaults both normal and defective jaws:

Normal jaw, average . . . . .	.58 of an inch.
Saddle-shaped arch, average . . . . .	.60 " " "
V-shaped arch, average . . . . .	.55 " " "
Semi-V and semi-saddle-shaped arch, average .56	" " "

It seems, then, that what has been considered a change in the height of the vault in narrowed and contracted jaw is only an imaginary one, the contraction conveying the impression that the vault is much higher than it really is.

In order to strengthen further the views herein suggested, I have taken impressions of the mouths of a large number of mouth-breathers, and have secured models of the same.

Dr. Talbot explained his views with about forty illustrations of different cases.—*International Dental Journal*.

Death during Anæsthesia.

BY SURGEON-MAJOR EDWARD LAWRIE, Hyderabad.

THE *British Medical Journal* of January 16th, 1892, contains an interesting article on chloroform by Dr. Lombe Atthill, in which it is stated that the Report of the Second Hyderabad Commission "affirms distinctly that death from chloroform is due to asphyxia." This is entirely a mistake. The Hyderabad Commission has affirmed over and over again that the only danger of asphyxia during chloroform inhalation is that it leads to gasping inspirations, and so to rapid and frequently irremediable overdosing. No doubt the nerve centres are more susceptible to poisoning with chloroform when asphyxia is present than when it is absent.

In the same issue of the *British Medical Journal* there is a letter on "Death during Anæsthesia," by Dr. Horatio C. Wood, of Philadelphia. Professor Wood says:—"Denial of the existence of the other side of the shield has been persisted in by many an honest and capable man, but in the long run the world learns for itself, and so I leave this controversy with the hope never to return to it." I trust sincerely Professor Wood will reconsider his decision, and fight it out like a man to the end. The Hyderabad Commission has never denied the existence of two sides of the shield. On one side are the true followers of Simpson and Syme.* Syme's cases and my own form a series of chloroform administrations extending over forty-five years without a single death. On the other side are Professor Wood, the Glasgow Committee, Professor Macwilliam, and their disciples the anæsthetists. On that side deaths under chloroform have been numerous, and have increased in frequency of late years in exact proportion as their teaching has gained ground.

We may well ask what is the difference between the two sides of the shield; and is it incapable of adjustment so as to make both sides alike? The main practical difference is this: The fundamental principle of chloroform administration on our side of the shield is that it is useless and dangerous to take the pulse as a guide. On Professor Wood's side, on the other hand, it is an essential principle of chloroform administration to watch the pulse continuously during the whole time of the inhalation. Our principles are founded upon uniform clinical and experimental data, and are characterised by uniform results; but on Professor Wood's side there is a conspicuous absence of uniformity in everything except the death-rolls from anæsthetics and antagonism to the Hyderabad Commission.

Our experimental data show that chloroform never affects the heart directly, and we are prepared to produce chloroform anæsthesia with uniform results in any laboratory or operating theatre in the world. If we can do this anybody can do it. The want of uniformity on Professor Wood's side is illustrated by Dr. Wood's statement that the heart is paralysed by chloroform; by Professor Macwilliam's statement that it is dilated by chloroform; and by the Glasgow Com-

* The true followers are to be distinguished from those pretenders who call themselves out-and-out followers of Syme, but nevertheless watch the pulse while chloroform is given, which Syme never did, *vide* "Chloroform Report," pages 193 and 399.

mittee's finding that the great danger of chloroform is sudden stoppage of the heart through the vagus ; while the anæsthetists tell us, through their champion, Dr. Dudley Buxton, that these anatomical conditions—denoting cardiac enfeeblement by chloroform—are the counterparts of the procession of events which they themselves encounter again and again in the operating theatre when chloroform is administered in accordance with their own plans.†

At first sight these differences may appear to be irreconcilable ; but in reality they are not so. The Hyderabad Commission has shown‡ that there is always complete uniformity in all experiments with chloroform inhaled in the natural way, and that absence of uniformity is only characteristic of experiments where natural breathing is interfered with. This is precisely the point which our opponents have overlooked. In Professor Macwilliam's experiments the thorax was laid open and chloroform was pumped into the lungs with bellows, so that natural breathing was impossible. In those of the Glasgow Committee the chloroform was administered "by a cloth saturated with the agent being held over the mouth and nose," that is, with insufficient air,§ and vagus stimulation—which the Hyderabad Commission has since proved is a safeguard in abnormal inhalation—resulted. In Professor Wood's experiments there is an omission of all mention of the regularity or otherwise of the respiration.

In the *Medical Chronicle* of May, 1891, a friendly challenge was thrown down to Professor Wood, Professor Macwilliam, and the Glasgow Committee, of which they have hitherto taken no notice. It may be repeated here, in the hope that they will take it up and see for themselves if the two sides of the shield cannot be brought into accord and the chloroform question settled, in order that deaths during anæsthesia shall henceforth and for ever cease to occur. I therefore repeat my challenge to Professor Wood and his supporters—whether physiologists or anæsthetists—to produce an irregular tracing in the laboratory, or any irregularity of the heart's action in the operating theatre, in any case of chloroform anæsthesia in which the breathing is regular and natural throughout the inhalation. If Professor Wood and his friends refuse to accept this challenge, judgment must go against them by default.—*British Medical Journal*.

Mercurial Stomatitis.

FOURNIER, in his clinical lecture on this subject (*L'Union Médicale*, February 3, 1891), alludes to the fact that the older writers frequently mention this affection as causing deep, even phagedenic ulcerations, which, on healing, bound the jaws firmly together. Abundant hæmorrhage accompanied these ulcerations. The teeth were lost and necrosis occurred, even death from exhaustion sometimes following. We do not see such cases now, because we do not believe that the germs of the disease are voided by the salivation produced. Formerly inunctions were much used.

† *Lancet*, December 13, 1890.

‡ The Report of the Hyderabad Chloroform Commission, p. 297.

§ *Ibid.*, pp. 229 and 245.

When mercury is given by the mouth, stomatitis is slow to begin and is progressive; it announces its advent by mild symptoms; it does not progress beyond a medium degree of intensity. Stomatitis from inunctions is exactly opposite; its invasion is sudden; it affects the whole mouth simultaneously; it is very severe.

There are two theories in regard to salivation; one regards it as an inflammation of the salivary glands, the secretion from these irritating the mouth; the other holds that the mercury irritates the mouth and provokes the salivation. Nearly every one believes now that the stomatitis is primary and the salivation secondary. A third theory ascribes the cause to a microbe.

To avoid salivation, be sure that the mouth and teeth are in a healthy state; caution patient to watch for symptoms; keep the mouth clean with a wash of chlorate of potash, and brush the teeth with equal parts of charcoal and cinchona, or cinchona and tannin, with essence of mint to flavour; watch the mouth for any indication of the drug's action; stop the treatment at the first alarm.

When salivation has occurred, touch the eroded points with a crayon of nitrate of silver and order mouth-washes of marsh-mallow and chlorate of potash or alum, two to two-and-a-half per cent. Chlorate of potash may also be given internally. In severe cases chlorate of potash, one and a-half to three drachms per day, in sweetened waters or gum syrup, will, in a few days, produce a calming effect. During the acute period irrigate with marsh-mallow solution, milk or plain water. Later on potash or boric acid washes may be tried and the gums may be painted with cocaine. Light superficial cauterization may be made over small areas. Sedatives like opium will also be useful in the course of the affection.—*University Medical Magazine*.

Death under Chloroform.

A DEATH occurred on March 9th at University College Hospital, leading to a coroner's inquest on the following Friday. We have been favoured with the house-surgeon's notes, which we shall publish next week. The patient, it will be seen—a greengrocer, aged 22—was about to be operated upon for necrosis of the lower jaw following an injury. The induction of anæsthesia was free from any difficulty, and was by the open method. When the patient was duly anæsthetised, the lint was removed from in front of the face, and the operation commenced, but respiration and the heart's action simultaneously ceased, and restorative measures, although promptly adopted and persisted in for a considerable time, failed to resuscitate the man. The necropsy showed some hypertrophy of the walls of the heart and thickening of the valves, but there was no fatty change to be detected by the eye, and the muscle seemed firm. In this case the first trouble clearly arose from the heart, as, although no heart movements were detected after the initial heart-stop, several respirations occurred. There was no obstruction to the free entrance of air into the lungs. The chloroform employed was received for analysis, but it had been successfully employed for other patients.—*British Medical Journal*.

MICROSCOPICAL AND LABORATORY GOSSIP.

THE following is the composition of a new insulating medium for electrical purposes:—Sulphur, 7 lbs.; pipeclay and slate-dust, $1\frac{1}{2}$ lbs. each; and paraffin wax, 2 oz. To these a certain amount of oxide is added, the quantity depending upon the colour desired to give to the mixture.

TO REMOVE RUST.—Various methods for removing rust have from time to time been suggested. One of the best is recommended by the *Chronique Industrielle*, and is as follows:—Potassium cyanide, 15 grammes; soft soap, 15 grammes; whiting, 30 grammes; with a sufficient amount of water to make a paste. This is used in the form of a scouring material, being well rubbed over the rusted surface. It is then wiped off, and a coating of oil applied to the iron to stop further action. Potassium cyanide, which is the active material in this composition, is one of the most poisonous substances known. According to the writer in the *Progressive Age*, no particular danger is to be feared from the use of the composition, but he suggests that the hands should be free from abrasions, since the composition, if it comes in contact with them, frequently leads to a very bad ulceration.

TO CLEAN FILES AND BURS.—Boil them first in soda-water, and clean out of the grooves any *débris* that still remains. Wash off the soda-water, and keep them in sulphuric acid, diluted with half water, for two or three hours. Some instruments will need a longer time, but experience will soon show how long. When sharpened, rinse thoroughly in soda-water, wipe dry, and oil them slightly.—*Items of Interest.*

CARBOLATE of camphor is made, says the *Therapeutic Gazette*, by adding one part, by weight, of carbolic acid to three parts of camphor, setting aside for twenty-four hours, and straining through gauze. It is a permanent liquid, with a specific gravity of 990. It is thoroughly antiseptic, and possesses unsurpassed germicidal powers. Locally applied to wounds, by means of cotton or gauze, it prevents suppuration. When kept in contact with the skin for several days it produces an eruption, which can, however, be prevented by mixing the liquid with oil. Injected hypodermically

it gives the best results in aborting abscesses or boils, and relieving pain.

To get the natural bite in taking articulations for artificial dentures, let the patient open his mouth, and before closing it tell him to place the tongue on the roof of the mouth and keep it there while closing.

It is stated in a recent number of *Items of Interest* that a Frenchman has succeeded in making commercially pure chloroform, which has been considered impossible. As the impurities in chloroform are generally the cause of its fatal effects, the Frenchman's achievement is regarded as very important.

It is announced, says *Electricity*, that a new primary electric battery has been perfected in London, with results which promise remarkable developments. Carbon made from small coal is used instead of zinc, the electrolyte being nitrate of potash in a certain condition. Great power is thus generated at low cost, and in very small space, this being of the highest utility for ship-propulsion and other purposes. The invention has been patented, but is not yet ready for the public. Many inventors have long been working in this direction, and the solution of the problem in England, if confirmed, is very gratifying.

IN a recent issue of the *Comptes Rendus*, M. F. Garros describes a novel porcelain which he has obtained by grinding asbestos to an impalpable powder, removing iron, &c., if necessary, by treatment with hydrochloric acid, making the powder into a paste with water, and baking it in a porcelain furnace for 18 hours at 1200°. The porcelain thus produced may be used for the filtration and sterilisation of liquids.

FROM *Discovery* we learn that D. Bottome, of Hoosick, New York, has invented a transformer in which he uses the chemical reactions to change alternating currents in a direct current. The transformer has four symmetrical conductors, each consisting of a containing vessel filled with an electrolyte of sulphuric acid or a sulphate with an electrode of inoxidisable material and another electrode of aluminium. These are so connected together that

currents of one direction only can pass through two of the conductors, while both join at common poles to form a direct current.

THE same journal announces that a new substitute for gutta-percha has been invented. Wood fibre, hemp, flax, woollen, or other suitable materials are saturated with linseed oil—which has been previously heated up to a temperature of 350° Fahr. with litharge. The fibre thus treated is then dried and again saturated with oil, the process being repeated again and again until the fibre has increased in weight by from 50 to 100 per cent. The dry fibre is now worked up into a homogeneous mass by the action of rollers running at a high speed, and then about 25 per cent. of gutta-percha or india-rubber is added, and so amalgamated with the fibre that the latter can afterwards be formed into blocks or rolled out into sheets, &c. It is said to possess good insulating qualities.

HOW TO PREVENT RUST ON IRON AND STEEL.—1. In the German army oil of gutta-percha is used for this purpose. It is applied with a flannel rag and will stand for years. To take off this preservative apply more of the oil, let it remain on the article for from twelve to twenty-four hours, when both the old and new application can be wiped off.

2. A solution of gutta-percha in benzine (consistency of cream) is a simple preservative against rust on metal. It can be easily applied with a brush and as easily removed by the application of benzine.

3. Dissolve thirty grains camphor with a pound of fat, take off the froth and add graphite, until it has attained the colour of iron. Wipe off tools, &c., and then apply the mixture, and wipe off after twenty-four hours with a soft cloth. This will keep tools or polished iron and steel free from rust for many months.

4. To preserve polished iron surface from rust, melt together seven parts fat (tallow) and one part resin, stirring the same until it cools. Apply in a half liquid state; if too stiff, thin with benzine or petroleum. It preserves the polish and can easily be removed.

5. To make a permanent preservative for iron or steel, it is best to use nothing but linseed oil thickened with a pigment related to the metal itself, and native oxide or a roasted oxide of iron, is

the best for purpose. Boiled linseed oil will form a skin through which no oxidation can take place.

6. Slake a piece of fresh lime in a covered vessel, with only water enough to make it crumble. While the lime is yet hot mix it with enough tallow to make a soft dough, and apply this mixture to polished surfaces. As it does not dry to any extent or become hard, it is easily removed.

7. Olmstead varnish or preparation has been in use for many years, and has proved itself perfect, especially for planed and ground surfaces and on Russian iron, which are very sensitive to rust. It is made by melting first sixty grains resin and then one pound of fresh tallow or other grease, when both are to be united. Must be applied while still warm, and the surface must be perfectly clean before application. This can also be removed without much trouble.—*Boston Journal of Commerce*.

TO APPLY THE RUBBER DAM IN CASES OF LABIAL CAVITIES, where the gums and alveolar border have receded so that the cavity extends nearly one-eighth of an inch below the margin of the alveolar border upon the opposite side of the tooth.—Take a piece of hard wood, shape it like a wood-carver's gouge, only let each corner project that it may pass in more or less between the teeth, fitting it to the position on the tooth. Before applying the dam, saturate a thin piece of spunk with a 20 per cent. solution of cocaine, and lay it on the gums for five or ten minutes; do not have too much of the solution, lest it mix with the saliva. Next apply the rubber-dam and also the ligature, tied loosely for the present. Pull the rubber and ligature-knot downward in front of the tooth, so as to expose the entire cavity and margin of the gums above the rubber. Place the stick in position and hold the rubber below the cavity firmly; let loose the rubber, and with a thin instrument carefully work the rubber to its place. In this an assistant may be of great service by tightening the ligature gently while holding the stick firmly in place with the left hand. The cavity may now be prepared and filled entirely with the right hand.—*Ohio Journal*.

ANNOTATIONS.

WE have to acknowledge the courtesy of the Registrar of the General Medical Council in forwarding to us early copies of the Medical, Dentists' and Medical Students' Registers.

These Registers, printed for the General Medical Council by Her Majesty's Stationery Office, are now ready.

In anticipation of the election of direct representatives to the Medical Council, the *Medical Register* has been revised with more than ordinary care, letters of inquiry as to accuracy of address having been sent, early in 1891, to every practitioner registered in England. By this means a large number of altered addresses was ascertained; and, in addition to these corrections, many more were subsequently obtained and inserted in consequence of the voting papers which were issued in November.

The number of practitioners registered during 1891 has somewhat increased, being 1,345 as against 1,266 in 1890; but deducting from these the removals from the Register, owing to deaths, and other provisions of Sect. 14 of the *Medical Act* (1858), the total addition of names to the Register, including restorations, is 392; thus the total now in the Register is 29,555, as against 29,163 in 1891. Of the new registrations, 683 were effected in England, 502 in Scotland, and 160 in Ireland.

The registrations of Colonial Practitioners under Part II. of the *Medical Act* (1886), now number ten.

The *Dentists' Register* for 1892 will be found to contain 79 persons more than that of 1891, thus making a total of 4,896, of which total 1,179 practitioners (*i.e.*, 24.07 per cent.) possess the qualification of Licentiate in Dental Surgery, while 3,698 (*i.e.*, 75.55 per cent.) are registered as "in practice before July 22nd, 1878." This shows a marked diminution, continuously going on, from the percentage (90.87) of those so registered appearing in the first Register published in 1879.

The number of Foreign Dentists now registered is 19, or nearly .4 per cent. of the whole.

The *Medical Students' Register* shows that 2,405 students registered in 1891. This is the maximum hitherto recorded, being 559 more than in 1890, and a higher number than has ever been reached in any previous year. This may be accounted for, no doubt, by the new regulations with regard to a five years' profes-

sional course that came into operation on January 1st, 1892. As done for many years past, statistics are given showing the respective preliminary examinations that these students passed, and the various Medical Schools or other "places of study" at which they commenced their professional career.

BACTERIOLOGY.—In our January issue we announced that a course of bacteriology would be held at King's College during the evenings of January, February, and March. Those who attended the course speak in high terms of its value, the instruction allowing a good general knowledge of the subject to be attained. It will be interesting to our readers to know that a similar course is to be held during the summer months on Monday evenings, and, like the last, will include Lectures, Demonstrations, and Practical Work, the syllabus being as follows:—

LECTURES.	PRACTICAL WORK.
May 9.—The Microscope. Classification of Bacteria.	Types of Bacteria.
May 16.—Cultivation of Bacteria. Methods.	Types of Bacteria.
May 23.—Anthrax.	Gram's Method. Sections, &c.
May 30.—Tuberculosis.	Sections. Sputum.
June 13.—Leprosy, Glanders.	Sections.
June 20.—Actinomycosis, Swine Fever.	Sections of Actinomycosis, Human and Bovine.
June 27.—Erysipelas and Suppuration.	Streptococci.
July 4.—Typhoid Fever, Diphtheria, Malaria.	Typhoid Cultures. Cultures.
July 11.—Hydrophobia. Tetanus. Bacteria and Disease.	Examination of Cultures. Plate Cultivations.

For any further particulars application should be made to R. T. Hewlett, Esq., Bacteriological Laboratory, King's College, London.

DENTAL HOSPITAL OF LONDON STUDENTS' SOCIETY.—The usual monthly meeting of this society was held on Monday, March 14th, 1892. Mr. W. B. Paterson, President, in the chair. Among the casual communications was an interesting specimen shown by Mr. Moseley of a pedunculated fibrous tumour or epulis, about the size of a cherry, occurring in the upper jaw of a fox terrier; the tumour was situated immediately behind the left canine and between it and the first premolar.

A case of unilateral paralysis of the soft palate was recorded by

Mr. Hern, supposed to have followed an attack of scarlet fever which occurred some fourteen years since, the patient was now undergoing treatment by electric currents applied to the affected part.

A paper was read by Mr. G. Northcroft, "On the Management of Patients." In it he discussed firstly, the various modes of dress adopted by dental surgeons and the arrangement of the waiting-rooms and surgeries. He then gave the course to be pursued in the treatment of children and patients who had many suggestions to make and advice to give, attaching much importance to the fact that the confidence of the patient should be gained and good work done.

The paper was well received and freely discussed by Messrs. J. P. Smith, Matheson, W. Hern, Peall. At the next meeting of the Society to be held in May, Mr. Moseley will read a paper on the preparation of cavities.

A RECENT number of the *Newberry House Magazine* contains an interesting article upon the Practice of Medicine in the Ancient East. From it we learn that the Egyptians were by repute the most skilful practitioners, and medicine amongst them had already advanced to the stage of producing specialists in ophthalmic and dental surgery. Upon the Egyptian practice of medicine much light has been thrown by the papyrus Ebers, written about two centuries before the Israelitish exodus, and even these archaic records contain distinct reference to the treatment of toothache. The Babylonians do not appear to have been so far advanced, but much has been gathered from some fragmentary tablets belonging to an Assyrian edition of an ancient Babylonian work on medicine. In this, diseases are classified and their treatment given, the author of the article remarking with regard to the latter that the number of ingredients contained in the prescription remind one of cases nearer home where so many drugs are prescribed with the hope that some at least will effect a cure. Some of the directions are unique, and we may mention the following as the medicine for the aching tooth. "The root of the plant of human destiny is the medicine for an aching tooth, it must be placed upon the tooth." "The fruit of the yellow snake wort and the roots of the herb of the Sun-god, and other remedies mentioned to be applied in the same way." As curious as any is the following:—"The roots of a thorn which does not see

the face of the sun when growing, together with liniment must be placed upon the tooth." Amongst other remedies are mentioned "the oil of the tree of Palestine," by which is possibly meant cedar oil. The whole article is extremely interesting, if only as showing that our speciality in those early days was distinctly recognised.

DANGERS OF ALUMINIUM.—It is stated that aluminium under certain circumstances is decidedly poisonous, and as its use in dental work has at times been suggested, it is worth keeping the fact in mind. It appears that some of the continental military authorities have been adopting this metal in the manufacture of soldiers' mess-tins and water bottles. Recently a soldier stationed near Nuremburg had partly filled his bottle with cognac, and after taking a small portion he was taken ill with symptoms of vomiting. The particulars of the case seemed to have aroused the suspicion of the doctor, and he had the bottle and its contents analysed, when it was discovered that there were some brownish-black spots, round in shape, upon the inner surface of the bottle, and that these contained a large proportion of aluminium and iron. The cognac had become muddy, and in the analyst's opinion had caused strong corrosion of the metal.

WE are very pleased to learn that Surgeon Herbert Canton has been appointed to the "Victory" for Haslar Hospital from 16th May, for the purpose of giving a short course of lectures in dentistry to surgeons passing through the course at that hospital, and to otherwise educate them in practical dentistry. He will perform all the dental operations required at the hospital and on board the "St. Vincent," and in the interval between the courses of instruction will visit the "Boscawen" at Portland, periodically, and if possible the Marine Division at Chatham and the Marine Dépôt at Walmer.

THE next examination for the Licence in Dental Surgery of the Royal College of Surgeons, England, will be held on May 9th and following days. The written and *viva voce* portion of this examination will as usual be held at the Examination Hall, and the practical portion at the Dental Hospital of London, Leicester Square.

GUY'S HOSPITAL has decided to raise its fees for Dental Students from sixty to ninety guineas ; this makes the fees at this School the same as those at the Dental Hospital of London and Charing Cross or Middlesex Hospital, and removes an appearance of competition that was to be regretted. It is desirable that in the matter of fees there should be no competition between either medical or dental schools.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Mr. Dall's Remarks on the Erratum of last month.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Your erratum on page 152 of the JOURNAL for March calls for remarks on two points.

First. The statement given therein of what Mr. Biggs said at the London meeting differs very materially from the report given in the *Transactions* of what he did say. Anyone comparing the statement and the report will at once see that they cannot both be correct. It is not for me to say which is correct. I only wish to point out that the fact that there is a material difference necessarily leads to one of two conclusions. Either Mr. Biggs on after-reflection felt it desirable to alter and amend what he had said, and has asked you to report him as having said something different from what he really did say, or the reports in the *Transactions* cannot be relied on.

Second. A claim is made by Mr. Biggs to have been the *originator* of one of the methods dealt with in *Mr. Macleod's paper*, which was given by him at the request of the executive committee, and suggests that I took advantage of what he had said on the subject. It may be unfortunate for Mr. Biggs that his genius appears to show itself in priority of speech only. On that I make no statement ; with that I have no concern. Neither is it any business of mine to discuss when, where, or what Mr. Biggs may have thought or said about a method which he said at London he had tried, but which he now says he has not tried ; about the details of which, if one is to judge of his various statements, he is very hazy, and which—no matter which version we take of it—is certainly not the same as mine, although his supposed new and latest idea, in which screwed tubes serve as sockets for the pins, was amongst my first attempts many years ago, and has, also, to my knowledge been tried by M. Ch. Godon, of Paris. It is sufficient for me to say that I had thought of the process before I ever knew Mr. Biggs, and that I had practised it before I had heard Mr. Biggs

speak, or was aware he had ever uttered a word on the subject. As for the method itself I gave it long and careful consideration, and after I had sufficiently tested it in practice I frankly communicated the results to the Odonto-Chirurgical Society of Edinburgh on the 11th of November, 1891, when I promised at some future time to communicate to the members my further experiences. The methods can stand on their own merits, and I am content to leave them in the hands of the profession, feeling assured that in the hands of careful practitioners they can be shown to possess great advantages. I have only to add that while I have felt constrained to address you at this time, I have no intention of pursuing the subject of this letter further in correspondence.

8, *Newton Place*,
April 2, 1892.

Yours faithfully,
 WILLIAM DALL.

[It may be as well to point out to our correspondent that all reports of speeches, taken as they are by shorthand writers who are not always intimate with the technicalities of the various subjects discussed, are liable to error. As far as is possible speakers are allowed opportunities of revising the proofs of their speeches before publication, but if a speaker sends us an amended version of what he said, we accept that version in good faith. Both Mr. Dall and Mr. Biggs have ample and undisputed claims upon the gratitude of the profession for past services, and will, we trust, add to them in the years to come, and we hope the erratum in question will not divert their energies from more important topics.—ED. *J.B.D.A.*]

APPOINTMENTS.

ARNOLD PRAGER, L.D.S.Eng., has been appointed House Surgeon to the National Dental Hospital.

C. ROBBINS, L.D.S.Eng., and H. LLOYD WILLIAMS, M.R.C.S., L.D.S.Eng., to be Assistant Dental Surgeons to the Dental Hospital of London.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 5.

MAY 16, 1892.

VOL. XIII.

The Museum at the Annual Meeting.

ON another page will be found a further notice of the Museum and the names of the Museum Committee, and we are glad of this opportunity of calling our readers' attention to the value of such a collection of specimens as is being made, and urging them to contribute to it heartily.

Details as to the safe packing of specimens were published in a letter from Mr. G. G. Campion, the Secretary of the Museum Committee, in our March issue. Labels for attaching to specimens the names of their owners have been specially prepared, so as to obviate all danger of loss, and all objects lent will be returned to their owners in the week following the meeting. With this provision for their safety and speedy return members need have little fear of lending their specimens, and we hope that those who have made a study of irregularities, and have models illustrating their treatment, will contribute them for the general good of the Association.

A special effort is being made to collect a large number of models, showing the results of extracting the six-year molars. The way in which such models should be prepared to show the resulting articulation was described and illustrated in our last issue, and towards this section of the Museum all our Members can contribute. Every practitioner has continually passing under his notice patients who have lost one or more of their six-year molars, and can contribute casts of these cases. Very often patients remember how old they were when these teeth were removed, and models forwarded with this information to the Secretary of the Museum Committee will be prepared in the way described, and placed in the Museum under the names of their owners. We understand that a report on this section of the Museum will be drawn up and published in the Journal, and possibly in a separate form also, and thus the collection will really form a piece of collective investigation which may be of the utmost value to practitioners. To do this well and enable any reliable conclusions to be drawn will necessitate the collection of a large number of these models—at least three or four hundred—and for most of these the Local Committee must obviously rely on the assistance of the Members of the Association generally.

One suggestion we should like to make to the Museum Committee is that the subject of anterior protrusion should be dealt with in the same way. Those who were present at the recent meeting of the Odontological Society will feel that, in spite of Mr. Hepburn's able introduction, the subject was by no means exhaustively discussed. A large collection of models, and a report upon them, would probably elicit facts which at present are only realised imperfectly and by a few, and place the general conception of the treatment of this deformity on a more rational and

scientific basis than it rests on at present. But, in any case, we look forward to the Museum as a valuable part of the Annual Meeting, and heartily wish it success.

ASSOCIATION INTELLIGENCE.

Annual Meeting of the Association.

THE MUSEUM.

The 9th July will be the last day for receiving specimens from members resident in the United Kingdom. Cases containing specimens should be addressed, Gæo. G. Campion, the Owens College Medical Department, Coupland Street entrance, Manchester. The names and addresses of senders should also be placed in small letters on the cases.

Specimens which have not the names of their owners firmly attached to them will not be admitted to the Museum. Three kinds of labels—for tubes holding teeth, for models, and for pieces of apparatus—have been prepared and will be forwarded to any member of the Association by the Secretary of the Museum Committee, on receipt of a post-card stating the kinds of label and the number of each required.

All specimens lent for the Museum will be returned to their owners in the week following the meeting, and the packing will be personally superintended by the Secretary and two or three other members of the Museum Committee.

MUSEUM COMMITTEE.

The following gentlemen have consented to act on the Museum Committee, and will be glad to receive specimens from members residing near them, and forward them to the Owens College :—

Metropolitan Branch and London.—Storer Bennett, F. Canton, D. Hepburn, W. Hern, S. J. Hutchinson, L. Matheson, W. B. Paterson, Morton Smale, C. J. B. Wallis, E. Lloyd Williams, W. H. Woodruff, H. L. Albert, J. F. Colyer, Sidney Spokes.

Southern Counties Branch.—G. Henry, Walter Harrison, J. H. Redman, Morgan Hughes.

Western Counties Branch.—W. A. Hunt, H. B. Mason.

Eastern Counties Branch.—S. A. F. Coxon, G. Cunningham.

Central Counties Branch.—J. Humphreys, J. E. Parrott, F. W. Richards.

Midland Counties Branch.—G. Brunton (chairman of committee), W. Dougan, R. Edwards, F. Harrison, P. Headridge, W. A. Hooton, E. Houghton, M. Johnson, E. J. Ladmore, T. Mansell, J. N. Manton,

A. A. Mathews, F. W. Minshall, H. Morley, T. Murphy, I. Renshaw, J. C. Storey, W. Simms, A. B. Wolfenden, G. G. Campion.

West of Scotland Branch.—J. A. Biggs.

Irish Branch.—W. Booth-Pearsall, A. W. W. Baker, G. M. P. Murray.

Since the publication of the last number of the Journal I have received a letter from Dr. I. B. Davenport, who promises to lend for the Museum a large number of models showing the results of the extraction of the six-year molars.

Dr. Davenport has for some years made a study of this question, and his collection of models will be a valuable addition to the Museum. This section seems likely to prove an exceedingly instructive and useful one. A number of models have been already prepared in the way illustrated in the last number of the Journal. In those cases where the age at which the extractions were performed could be ascertained, photographs of the models have been made, and it is proposed to show these by means of the lantern, in order to start a discussion on this point. The local committee is anxious to obtain a large number of models of this kind, and, as such cases are constantly passing under the notice of all practitioners, it is hoped that members of the Association generally will assist in this matter. The Committee will be glad to prepare in the necessary way models illustrating this point, but models sent for this purpose should be forwarded not later than the middle of June. They should *not* be dipped in stearin, nor coated with any other substance to harden them.

I have already received from Mr. Booth-Pearsall a magnificent collection of about ninety photographs of the dental specimens collected by the late Mr. R. Nasmyth. These specimens are now in the Museum of the Royal College of Surgeons of Edinburgh, and are many of them of the greatest interest.

G. G. CAMPION,

Hon. Sec. Museum Committee.

Midland Counties Branch.

ANNUAL MEETING OF THE BRANCH.

THE Twelfth Annual Meeting will be held in the Victoria Hall, Buxton Road, Huddersfield, May 19th, 20th and 21st. President, A. Fothergill (Darlington); President-elect, W. E. Harding (Shrewsbury); Hon. Treasurer, S. Wormald (Stockport); Hon. Secretary, I. Renshaw (Rochdale).

ORDER OF PROCEEDINGS.

Thursday, May 19th.

8 p.m.—His Worship the Mayor, Alderman Reuben Hirst, will hold a reception in the Town Hall (Ramsden Street entrance), for members and lady friends.

9.30.—Council Meeting at the George Hotel, after the reception.

Friday, May 20th, at the Victoria Hotel, Buxton Road.

DEMONSTRATIONS.

9 a.m. — "Fusible Metal Alloys," by R. P. Lennox (Cambridge); "Continuous Gum Work," by Harry Rose (London); "Electricity for Dental Purposes," by W. Broughton (Eccles); "On Preparing and Mounting Sections of Teeth, &c., for Microscopical Examination," by M. Johnson (Chester).

12.5 noon.—Business Meeting (Members only). Election of Officers, and other Business. President's Valedictory Address.

1.15 p.m.—Adjournment for Luncheon. The President for the ensuing year, W. E. Harding, invites the members and friends to luncheon at the George Hotel.

GENERAL MEETING.

2.30 p.m.—President's Address, open to ladies and visitors.

CASUAL COMMUNICATIONS.

3 p.m.—"Notes on Cases of Absorbed and Perforated Roots, treated by Sponge Grafting," by G. Brunton (Leeds).

PAPERS.

"Observations on Dentistry," by S. Wormald (Stockport); "Dry Cavities," by L. Matheson (London); "Cocaine," by E. F. Scougal, M.A., M.B. (Huddersfield).

G. G. Campion (Manchester), will exhibit with the lantern, photographs of models, showing the result of extracting the six-year molars.

6.30 p.m.—Dinner at the George Hotel. Tickets, 7s. 6d. each, to be obtained at the Hotel.

Each member or associate can introduce a friend to all but the Business Meeting, and the friend's name should be entered in the list of visitors.

ARRANGEMENTS FOR LADIES.

During the time the meetings are being held, ladies will be conducted over cotton and woollen mills (the former owned by the Mayor), and also over a card making works.

Saturday, May 21st.

Arrangements have been made for an Excursion to Bolton Abbey and Bolton Woods.

Bolton Abbey was built in 1153, and is situated in the midst of most picturesque scenery. The nave of the abbey was repaired in 1859, and is now used as the parish church, the tower and the rest of the building being in ruins.

Bolton Hall, opposite the Abbey, is used as an occasional residence of the Duke of Devonshire, and contains many antiquarian relics.

The *Strid*, a narrow chasm through which the river Wharfe rushes, is within walking distance, and is well worth a visit.

The Railway Company will issue return tickets for 3s. 7d., and Saloon Carriages will be provided.

Luncheons will be supplied at the Devonshire Arms, at 2s. 6d. each.

Drives can be arranged for on the spot.

It is absolutely necessary that early application be made to the Hon. Secretary for railway and luncheon tickets, before May 15th, in order that adequate provision may be made.

Tickets to cover railway and luncheon will be forwarded on receipt of 6s. 1d.

The Train will leave Huddersfield at 8.5 a.m.

HOTELS AT HUDDERSFIELD.

George (near the Station); Imperial (New Street); Cherry Tree, Queen (Market Street).

I. RENSCHAW, Hon. Sec.

87, *Drake Street, Rochdale.*

Southern Counties Branch.

A MEETING of the above was held at Eastbourne, on April 9th, G. Henry, President, in the chair.

Mr. HARRY ROSE read a paper on the method of working his continuous gum material.

The President, the Hon. Sec., Messrs. J. H. Whatford and Leslie Maxwell brought forward casual communications.

After the meeting members dined together, and a collection on behalf of the Benevolent Fund realised £2 14s.

The Annual Meeting will be held at Brighton, on Saturday, June 18th or 25th, probably the former date. Full particulars will be announced in due course.

West of Scotland and Scottish Branches.

THESE two Branches will hold a joint Annual Meeting in Glasgow, on Friday and Saturday, June 3rd and 4th, in the Rooms of the Faculty of Physicians and Surgeons, 242, St. Vincent Street.

On Friday at 2.30 p.m. the two Branches will hold separate meetings for the election of office-bearers and other branch business. At 3 p.m. the two Branches will unite and discuss matters of mutual interest to be announced. At 6.30 p.m. members and guests will dine in the Windsor Hotel, Mr. J. A. Biggs, President-elect of the West of Scotland Branch, in the chair, and Dr. W. H. Williamson (Aberdeen), President of the Scottish Branch, croupier.

On Saturday, members and ladies will meet at St. Enoch Station at 8.55 a.m., and proceed thence by rail to Greenock (Princes Pier), where a steamer will await them to sail to Tighnabruaich, returning in the afternoon in time for trains for Edinburgh.

Western Counties Branch.

A MEETING of the Council of this Branch was held at the Castle Hotel, Dartmouth, on Saturday, April 30th, at 3 p.m. The attendance included the President, Mr. E. L. Dudley (Bath); the President-elect, Mr. J. H. Gartrell (Penzance); Messrs. Ackland, Browne-Mason, H. B. Mason (Exeter); E. Goodman, A. Kendrick (Taunton); T. Taylor Genge, W. Helyar (Clifton); W. F. Cornelius (Teignmouth); and J. J. H. Sanders (Barnstaple).

The annual meeting at Penzance was fixed for Friday and Saturday, July 29th and 30th, and it was decided to leave the arrangements in the hands of the President-elect and Hon. Sec., who will be glad to hear from members willing to contribute papers or demonstrations. Messrs. T. A. Goard and J. A. Mallet (Exeter), and Mr. Geo. Thomson (Torquay), were elected members of the Association and Branch.

The Council received, with much regret, the announcement of the death of Mr. Cooke Parson, of Clifton, a past President of the Branch, and one of its most useful and esteemed members. The Hon. Sec. was directed to send a letter of condolence to Mrs. Cooke Parson.

Messrs. J. T. Browne-Mason (Exeter), and J. C. Oliver (Cardiff), were nominated on behalf of the Branch to fill vacancies on the Representative Board, and a resolution was carried unanimously approving of the principle of electing, instead of nominating, representatives to the Board.

A communication was read from Mr. G. G. Campion with reference to the Museum proposed to be held at the Manchester meeting of the Association, and the Council hope that members in their respective districts will do their best to collect specimens (models showing the result of extracting the six-year molars will be especially acceptable), and forward either to the Hon. Sec. of the Branch, or preferably, direct to Mr. Campion at Manchester. The last day for receiving specimens will be the 9th of July.

At the conclusion of the business, specimens and apparatus were exhibited and explained by the President and Messrs. Gartrell, Genge, and others, the members present subsequently dining together in the hotel.

Eastern Counties Branch.

THE Annual General Meeting will be held at Cambridge, on Wednesday, June 22nd. President, R. Payling; President-elect, G. Cunningham, M.A., D.M.D., L.D.S.Eng.

PROVISIONAL PROGRAMME.

Reception at Merton Hall by the President-elect, on Tuesday evening, from 8 to 11 p.m.

Wednesday.

9.30.—Meeting of the Council.

10.—General Meeting, &c.

1.—Adjournment for Luncheon.

2.30.—Conference on "The Condition of the Teeth of School Children."

7.15.—Annual Dinner in the Hall of Downing College.

A detailed programme will be given in the June number of the Journal.

53, *Trumpington Street,*
Cambridge.

W. A. RHODES,
Hon. Sec.

The Benevolent Fund.

THE following new Subscriptions and Donations to the Benevolent Fund of the British Dental Association have been received by the Treasurer since December 15th, 1891 :—

Subscriptions.

Longhurst, H. Bell, 28, Old Burlington Street (increased from 10s.)	...	...	...	...	...	£1	1	0
Longhurst, Sidney, 28, Old Burlington Street (increased from 10s.)	...	...	...	...	...	1	1	0

Donations.

Central Counties Branch of British Dental Association, Collected at Meeting, February 11th, 6th donation (per W. Palethorpe)...	...	...	...	...	...	0	18	8
Henry, Martin, 63, Sandgate Road, Folkestone	...	...	...	...	...	0	10	6
Irish Branch of British Dental Association, Collected at Meeting in December, 9th donation (per G. M. P. Murray)	...	...	...	...	...	0	16	3
Midland Branch of British Dental Association, Collected at Meeting, February 27th, 11th donation (per Isaac Renshaw)	...	...	...	...	...	5	2	0

Southern Counties Branch of British Dental Association,									
Collected at Meeting, February 20th, 10th donation									
(per Morgan Hughes)	...	...	...	...	...	...	...	£2	5 6
Southern Counties Branch of British Dental Association,									
Collected at Meeting, April 9th, 11th donation (per									
Morgan Hughes)	...	...	...	...	...	...	...	2	14 0
Tait, Thomas A., Ovenden House, Tenterden, Kent	...	...	...	...	...	...	...	0	5 0
Western Branch of British Dental Association, Collected at									
Meeting in July, 3rd donation (per J. T. Browne-Mason)									
								3	0 1

ORIGINAL COMMUNICATIONS.

Continuous Gum Work.*

By JOHN TURNER, L.D.S.Ed.

THE restoration and reproduction of the dental tissues, viz., gum, by an artificial substitute possessing at once a life-like appearance and readiness of adaptation, has engrossed the attention, and brought into activity the inventive and manipulative skill of many members of our profession. The various dental companies have endeavoured to grapple with this important subject by the production of a rubber which would meet all the requirements, but they have been unsuccessful.

In considering the means at our disposal to remedy the defect, we firstly take rubber, the speciality misnamed gum-rubber. The great majority of dentists use this agent to restore the deficiency due to absorption, but its glaring artificiality, and its only too apparent unsightliness in the mouth, renders it an object of disgust rather than pleasure, and to an operator endowed with the smallest degree of artistic perception its appearance is painfully obnoxious. The best so-called gum-rubber produced to simulate nature is undoubtedly shaded pink, the light and shade produced after careful manipulation deceiving the eye to a certain extent, but nevertheless, with all its merits, it lacks translucency, and presents a dead and unlikelike appearance.

In dismissing rubber, we cannot but come to the conclusion that its days as a gum substitute are numbered, and that the only medium possessing all the characteristics of nature is mineral.

* Read at the West of Scotland Branch Meeting, in Glasgow, March 31st, 1892.

Gum Sections, supplied ready to hand, are in many cases of great value, but in others their stiffness and inadaptability to the irregularity of many mouths prohibit their use to a certain extent. Therefore we are left no other alternative but to make use of the materials to hand, namely, manufactured teeth and prepared porcelain.

Continuous Gum Work.—This work is the perfection of prosthetic dentistry. The artistic instincts which should pertain to every true dentist are brought into activity, and a work of art is produced. The difficulties incidental to the satisfactory completion of the work, the expense incurred, and the time expended in its construction, have been potent factors in limiting its universal adoption. In the modification which I have the pleasure to submit to your notice, the difficulties just referred to—time, labour, and expenditure—are reduced to a minimum.

Porcelain Gum Facing on Gold Plate.—The plate is struck in the ordinary way. A gold wire, pin thickness, is soldered along the extreme edge, over-lapping the gum on the labial side. This wire gives substance to come and go upon, should necessity arise to reduce the depth of the edge of the plate.

A piece of platinum foil is either struck or burnished on the alveolar border, carrying it down to the wire and slightly upwards, so as to form a reliable edge for the porcelain. This second plate is slightly secured to the base plate, so as to admit of its ready removal.

The teeth are mounted as in combination gold and vulcanite work, and suited to the requirements of the bite, and are secured to the plate on the labial side, so as to leave the pins and lingual aspect of the teeth free, thereby enabling them to be securely fixed in the investment. Their adjustment being complete, an iron wire is carried round their face from molar to molar, and firmly secured to them with hard wax, to obviate any displacement.

Before removing the teeth in conjunction with the platinum plate from the base, it is advantageous to have a top bite to facilitate replacing of the completed section.

The base plate is marked for the retaining pins, and the case is ready for investing.

Investing.—The teeth are placed crown downwards in the material, leaving a quarter of an inch of substance underneath, the pins of the teeth and the plate being securely fixed in the investment. When set, the wax is removed and the case

thoroughly dried. When this is completed it is in a condition to receive the body.

Body.—This is mixed with distilled water to the consistency of a thick paste, which is applied to the platinum face and modelled as near as possible to what is desired when finished, making due allowance for the gum enamel.

Firing.—This is the most important item in the construction of this work. Great care must be exercised to prevent over-firing of the work in the first stage. Biscuiting is all that is necessary. If carried beyond this, we may have a curling up of the edge of the body and an undesirable amount of shrinkage which will produce endless trouble. The case is placed in the front of the muffle, and is slowly and carefully carried to the back. The operator being satisfied that the moisture is thoroughly gone, and all risk of starring obviated, the door is placed on the furnace, an observant eye being kept on the case to prevent the possibility of over-firing. Three minutes is about the average time required to ensure a successful firing. At the expiration of that time the block will be found sufficiently fired. When convinced that the requisite heat has been attained, the door is removed from the furnace. This immediately reduces the temperature without chilling. The case is by degrees brought to the front of the muffle and left to cool. The cooling being complete, any defects in the body due to shrinkage are filled up, and the case replaced in the furnace, using the same precautions as before with regard to drying, heating and cooling.

The body being perfect, the case is ready to receive the gum colour; this must be modelled carefully to the exigencies of the case, aided by the artistic abilities and capacity of the operator. It is now ready for its final firing. Dry carefully, then submit it to a brisk heat for about six minutes, and the operation is complete. Cool the case carefully, place it in slightly warm water, and the stool will fritter away, leaving the case ready to be adjusted to the model. If the edges require trimming, do it gently to avoid fracture. In the interval of cooking the gum, take a thin strip of gold plate, run it along the border of the gold wire, leaving a free edge of plate to burnish along the lower border of the mineral. I would also recommend all coarse polishing to be done during that time.

Packing.—Adjust the completed section to the bite, secure it with wax to the plate, invest it in a flask, leaving the lingual side

free. Remove the wax and pack with 1st gum rubber. This is recommended owing to its intense adhesive powers, the only pressure necessary being a hot burnisher. Model the rubber to the case as with wax, fill in the flask with plaster and vulcanise.

Porcelain Facing on a Vulcanite Base.—A wax plate is made as in vulcanite work. A roll of wax is carried along the edge on the labial side. A metal die is taken, and a piece of platinum plate struck on the alveolar border. The teeth are to be mounted in the same way as in Case 1, and the same procedure adopted. On the section being completed, and adjusted to the bite, great care must be taken in packing. The case is firmly secured to the model on the lingual side with hard wax. The wax on the labial border is stripped off close to the mineral. The exposed portion of the model is painted with a solution of chloroform and rubber. Red rubber is modelled to the surface, replacing the wax, great care being exercised to prevent the vulcanite overlapping the block, as fracture would undoubtedly follow, owing to the shrinkage of the rubber. A face bite is now applied, and the wax on the lingual aspect washed out and replaced by rubber, all pressure and modelling being done by a hot burnisher.

Partial Cases.—To supply a deficiency between canine and canine, a platinum foil plate is struck or burnished upon the deficiency. The teeth are set and adjusted to the bite, and the gum is prepared in the same manner as before mentioned. When complete, strip off the platinum and replace it with a layer of rubber. This saves the metal, and does not detract from its strength. The precautions as to the packing are the same as before. Those partial cases are also applicable to metal work. The plate is made in the usual way. The teeth are backed with metal, but the backs are removed prior to firing. They are replaced on the completion of the section, and as a whole are soldered to the base plate in the usual manner.

Joining Gum Sections with Porcelain.—The blocks are mounted in the ordinary way, leaving a V-shaped aperture between the sections, the widest portion being towards the labial surface. The sections are secured together as in Case 1. Invest, fill the seams with gum, colour and fire, one application being sufficient.

Stool or Investment.—This is composed of two parts of ground muffle, one part of asbestos, and a small portion of plaster of Paris—just sufficient to keep the mass together. An excess of plaster would injure the blocks. The case should not be removed

from the stool or investment until the firing is completed, as it retains its integrity throughout five or six firings.

Time.—The time required to make a complete upper or lower block is from three to four hours. For a section of four to six teeth, about two hours, inclusive of making platinum plate, mounting teeth, and firing, &c., ready to be adjusted to the model.

Furnace.—The furnace used is an ordinary blast furnace, such as is used for the ordinary work of a laboratory, with the exception that the top brick has been removed, and a cast iron face with an aperture to receive the muffle has been substituted. The fuel recommended is gas coke.

The Gum and Body used is Ash's, which fires at a lower temperature than Allan's, and produces an excellent result. Scrupulous cleanliness should be observed throughout the whole operation.

In conclusion, though I have done the subject inadequate justice, I trust that my efforts will be rewarded with good results, stimulating especially the younger men to bring into general use this beautiful, natural, and artistic work.

NOTE.—I do not claim originality for the system advocated above, but not having seen it referred to in any publication, I worked it out conscientiously, animated solely by two desires—firstly, to combine simplicity with a moderate expenditure of time and money, and secondly, that those who were unfamiliar with the work might have the advantage of the experience of one who had carried it out practically.

Subject matter of a paper sketched with the object of raising discussion on the physiological action of Nitrous Oxide, and the desirability of keeping bottles of Oxygen ready for use in every Hospital.*

BY G. COCKBURN SMITH, M.D.

ANÆSTHETIST TO THE GLASGOW DENTAL HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—Fearing that it will be difficult to bring before you anything fresh regarding this your special anæsthetic agent, I will, with your permission, commence

* Read at the West of Scotland Branch meeting in Glasgow, March 31st, 1892.

by giving a translation of an account of an experiment which I think you will agree with me is interesting and instructive. It was undertaken by M. C. Martin, an eminent dentist at Lyons, whose acquaintance I was happy enough to make whilst working at anæsthetics in that town. M. Martin had a chamber furnished with small port holes and having a capacity of 250 litres constructed to withstand a pressure of one atmosphere and a half and so arranged that it would receive a dog. At 5 p.m. the animal was placed in the chamber, which was filled with Paul Bert's anæsthetic mixture (nitrous oxide 85, and oxygen 15 parts) the pressure was then progressively raised to 110, 115, and 120 degrees, and in one hour and a half sleep was induced. It was then contrived that a continuous supply of the mixture, at the rate of 15 litres per hour, should enter the chamber. At 6 a.m. the subject was thoroughly anæsthetised but suffering from dyspnœa, to relieve which 350 litres of the gaseous mixture were allowed to enter in the course of a few minutes, and the respirations becoming regular the supply was continued at the rate of 25 litres per hour. Twelve hours later the breathing was tranquil, and continued so to the end of the experiment which lasted in all 72 hours.

The dog having been removed from the chamber was observed, at the end of fifteen minutes to move his front paws, open his eyes, look disturbed and tremble as if cold—in fact the temperature was markedly lowered, the fur was wet, the hind quarters would not respond to the animal's endeavours to raise himself completely, though on pricking the paw movements were provoked. After breathing in the free air for fifty-five minutes he walked about and obeyed when spoken to. He refused milk. His intelligence did not appear to be in the least affected. He was then left to rest quietly and the following morning at seven was found standing up, was very lively and had a good appetite, there was in fact nothing abnormal about him.

It is right to point out that the reason why it took one hour and a half to induce anæsthesia was the necessarily gradual elimination of the air contained in the chamber.

The anæsthetic state once established pressure was brought to 110 and maintained at that degree to the end of the experiment.

Some moistened lime had been placed in the chamber to absorb what carbonic acid was not carried off with the other gases as they left, the gaseous outflow amounted to 2500 litres for the whole of the time that the experiment lasted.

It has long been known that nitrous oxide gas does not destroy vegetable life, and that germination goes on perfectly well in the presence of N_2O and oxygen 88 part of N_2O , and 12 of O under the pressure of one and a half atmospheres are found to be the proportions most conducive to vigorous plant growth. P. Bert's opinion that nitrous oxide is also innocuous to animal life is certainly on all fours with the above mentioned experiment, and as M. Martin rightly suggests this can be said of none of the anæsthetic vapours commonly employed in surgical practice; they all expose the patient, at the end of a variable time, to grave dangers, whether their administration have been intermittent or continuous; and P. Bert has demonstrated that chloroform and ether mixed with air and administered for a term of hours invariably causes death, even when the strength of the vapour is insufficient to induce anæsthetic sleep.

The initial cost of the chamber, its size, which hampers the movements of the operator and limits the number of his assistants, and the pain in the tympanic membrane caused by the increased atmospheric pressure and much augmented when from cold or slight indisposition the mucous membranes are in a relaxed condition, though temporarily relieved by eustachian inflation, all militate against the general adoption of this method of inducing anæsthesia.

Then again for dental extractions and certain operations in and about the mouth, if we do not take into consideration the element of risk always present in the administration of nitrous oxide in the usual way, undiluted and at the ordinary atmospheric pressure, the advantages of the chamber are almost nil, in consequence of the rapid return of consciousness upon removal of the face piece.

The anæsthesia produced by the inhalation of a mechanical mixture of nitrogen and oxygen as proposed by Dr. Johnson, and the analgesic state often noticed in asthmatic patients and carbonic acid poisoning, have thrown doubt on the inherent anæsthetic properties of nitrous oxide gas. Possibly the anæsthesia is due to the presence of ptomaines in the blood or whatever those products of the metabolic changes in the tissues may be, which are eliminated from the blood by the lungs and skin. Whether however the rapid way in which an inspiration of oxygen, in the course of nitrous oxide administration, will cause a fall in the pulse-rate (from 140 to 80) and a subsidence of cyanosis (as I have had the privilege of noting when witnessing Dr.

Hewitt's experiments) may be looked upon as favouring this idea is, I think, doubtful, as is also the recorded incident showing that the consciousness of a man who had swooned from loss of blood, temporarily returned each time the door of the hut in which he lay was opened.

In the nitrous oxide and oxygen experiments the effect upon the pulse was far too rapid to be explained by the oxidation of the ptomaines; some local action of the oxygen must, one would think, have caused the vital centres in the medulla oblongata to act reflexly, unless indeed the ganglia in the heart itself were able to slow it so markedly. Perhaps a sudden increase in the calibre of the abdominal vessels or those of the general system may have drained away the venous blood from the face, and so changed the cyanotic appearance, the temporary lowering of arterial tension rather favours this conclusion—while a rapid inflow of oxygenated blood explains the florid colour which follows.

The fact that in nitrous oxide administrations, after the residual air has been expelled, the nitrous oxide passes in and out of the lungs without change, and may be re-inhaled with impunity, causing no unpleasant after effects, in the shape of headache, nausea or malaise, seems to indicate, not only that there are no ptomaines in the circulation, but that the gaseous changes between the blood and atmosphere in the lungs have ceased. Of course oxidation being temporarily arrested the poisons do not enter the blood stream, so that lack of oxygen, rather than the presence of poisonous effete matter, is probably the cause both of asphyxia and the anæsthesia, the former oxygen inhalation instantly relieves, the latter remains until a certain quantity of oxygen has had time to enter the circulation.

I hope that the foregoing remarks will be taken as the excuse for my again pleading for the presence of bottles of oxygen in the surgical as well as in the medical wards of every hospital.

SYRINGE PISTONS.—When syringe pistons get dry and will not work, instead of soaking them in water, smear the dry leather with olive or other oil, and spread it a trifle, allowing a minute or two for it to penetrate.—*The Ohio Journal of Dental Science.*

LEGAL INTELLIGENCE.

Patent Medicines Containing Poison: Government Prosecution.

AT Bow Street on Saturday afternoon, before Mr. Lushington, Mr. J. T. Davenport, of 33, Great Russell Street, Bloomsbury, chemist, appeared in answer to a summons for having on February 12th sold by retail at the above address certain poisons—namely, opium and chloroform, contained in a preparation known as Dr. Collis Browne's chlorodyne—without labelling the wrapper of the bottle with the word "poison," contrary to the 17th Section of the Sale of Poisons and Pharmacy Act Amendment Act, 1867. Mr. Gill, together with Mr. Craies, prosecuted on behalf of the Treasury; Mr. Poland, Q.C., and Mr. Besley represented Mr. Davenport.

Mr. Gill said the Act under which the prosecution was brought was passed for the purpose of regulating the sale of poisons, and amending the Pharmaceutical Act of 1852. The object of the Act was to provide for the safety of the public. This chlorodyne was sold without the protection to the public of bearing on the label outside the bottle the word "poison." In consequence of matters that had come to the knowledge of the authorities in relation to the presentations of coroners' juries with regard to deaths of children and of adults by misadventure, this matter had been directly brought to the attention of the Attorney-General. It was decided to raise a test case, and among the medicines sold in this way throughout the country this preparation was selected, having regard to the quantity of opium and chloroform in its ingredients. When the Act was passed there were certain patent medicines whose ingredients were well known, and it was thought right to give them protection as existing rights. But it was impossible to suggest that this was a patent medicine simply because it was sold with a Government stamp on it, and because any person exposing it for sale was required to take out an excise licence. It was in no sense a patent medicine, but simply a nostrum.

Mr. Poland intimated that he was going to contend that it was a patent medicine within the meaning of Section 16.

Police-Sergeant Williamson, Scotland Yard, said he visited the defendant's shop on the afternoon of February 12th, in company

with Inspector Moore. Leaving Moore outside, he entered the shop and purchased six 1-ounce and six 2-ounce bottles of Dr. J. Collis Browne's chlorodyne. The person from whom he bought them asked if he was in the trade, and he said "No." He said, "If you were I could let you have it cheaper." Witness replied that he wanted it for a friend in the country. When the purchase was complete Mr. Moore came into the shop and witness handed the parcels to him.

Inspector Henry Moore corroborated the evidence of the last witness. He had had the conduct of the inquiries that had taken place in connection with patent medicines. When he entered the defendant's shop he informed the assistant, Mr. Sherburn, who he was, and that the purchases had been made for the purpose of analysis. He now produced the bottles, except those he handed to Dr. Dupré. Neither the wrapper nor the label of the bottles contained the word "Poison." On March 15th he handed to Dr. Dupré two of the 2-ounce bottles of chlorodyne, which were marked. On March 17th he handed him a 1-ounce bottle, which was also marked. Before the purchase from Mr. Davenport witness had purchased from ordinary tradesmen.

Cross-examined by Mr. Poland: He produced an unopened bottle. They all displayed the Government stamp, the trade mark, name of the article, and Mr. Davenport's name and address, and the sentence, "None genuine without Dr. J. Collis Browne's name on the Government stamp." There was inside the wrapper a paper.

By Mr. Gill: It was alleged on the paper that the mixture had been found to succeed where morphine, chloroform, and other powerful pharmaceutical preparations produced no curative result whatever.

Dr. Dupré said: I am a Professor of Chemistry at the Medical School at Westminster. I have had a very large experience as an analytical chemist. I was instructed by the Treasury authorities to make certain analyses in this case, and on March 15th Inspector Moore handed me two 2-ounce bottles of this preparation, one of which I now produce. In the presence of Dr. Paul, I mixed the contents of the two bottles, and gave him two ounces of the liquid. I afterwards made a careful analysis of it, and got 15 per cent. of chloroform out of it, and rather more than 2 grains per ounce of morphia or morphine. Chloroform is one of the poisons mentioned in the second part

of the schedule of the Pharmacy Act. Morphine is the chief acting ingredient in opium. It is certainly a preparation of opium, and is a dangerous poison—very dangerous in some cases. The presence of chloroform would to some extent increase the dangerous qualities of the morphine.

Cross-examined : Besides the chloroform and morphine there are several other ingredients, including oil of peppermint. I only analysed for the morphine and chloroform. It is a very complicated mixture, and there may be four or five other ingredients. Not knowing what they are, I cannot say to what extent they would control the action of the chloroform and morphine. I can remember this mixture being on sale for a great many years. It is commonly called a patent medicine. I do not know a single medicine to-day that is the subject of a special patent ; in fact, patents are avoided, because if you take one out you must specify the ingredients. I do not know if one existed in 1868. There are $437\frac{1}{2}$ grains in an ounce.

By Mr. Gill : There would be about eighty doses of 10 drops in a 2-ounce bottle.

Dr. Paul, a Fellow of the Institute of Chemistry, said he had had a large experience as an analytical chemist. He analysed 2 ounces of the mixture on March 18th, for the purpose of finding morphine. He found a quantity exceeding 2 grains to the fluid ounce. A very minute dose would prove fatal in the case of an infant. The mixture might be described as a preparation either of opium or morphine. He was not aware of anything in the other ingredients to lessen the effect of the morphine. There was a small quantity of prussic acid present, but nothing could he suggest as an antidote.

Cross-examined : He made no analysis of the other ingredients, He had known of chlorodyne for forty years, during which time it had been sold to the public. He could name no medicine which was the subject of any existing patent.

By Mr. Gill : Fatal results from taking chlorodyne had been of frequent occurrence. That was a matter of common knowledge. From general observations he thought the other ingredients contained some sugar and hot spice.

This concluded the case for the prosecution.

Mr. Poland, on behalf of the defendant, said this prosecution was a somewhat novel proceeding on the part of the police. For upwards of forty years this medicine, which he ventured to call

a patent one, had been sold as a patent and protected medicine. The Act under which these proceedings were taken was passed in July, 1868, and now for the first time the present owner of this valuable property was brought up on a summons for the infringement of its provisions. If he had infringed it, notwithstanding these circumstances, he must of course be made amenable to the law; but he (Mr. Poland) ventured to submit that there had been no infringement. He would have thought it much better that a bottle should not be labelled "poison," but simply be known as medicine, because nobody would be likely to take medicine except the person who required it for curative means. They had heard that the mixture was of an occult nature, consisting of chloroform, a preparation of opium, and a little prussic acid, and several other ingredients; but he was not going to let every person in the world know what was the real composition of the medicine which had descended to the representatives of Dr. Collis Browne's family. The magistrate would no doubt hold a *prima facie* that, this being the case, the medicine was a poison within the meaning of the Act; but the question was whether this Act in any way applied to the mixture, because it must be remembered that not only did the Act require that the word "poison" should be put on the bottles, but that every retail dealer who sold the mixture should also place on it his name and address. This in trade would be a most inconvenient thing.

Mr. Gill said he did not dissent from that proposition.

Mr. Poland (continuing) contended that the Act did not apply to the article because it was a patent medicine. He entirely contested Mr. Gill's proposition that a patent medicine must be the object of some existing patent, but said that a patent medicine, in the meaning of the section was every such medicine as required for its sale that there should be a Government licence and stamp, and of course, a licence on the part of the person selling to sell. If this was not a patent medicine it could not be sold by any but a qualified chemist. All medicines sealed up, and with a stamp, were known as patent medicines, and the words were put in Section 16 not only to apply to medicines under existing patents, but to those known as patent medicines, which were nostrums, in the preparation of which there was some occult process, and they were on the same footing with those actually patented. The Act of Parliament did not only apply to medicines

that were under existing patents, but to articles sold under licence, and for which a Government stamp was required. If it were not so, the word "poison" must not only be put on, but the article must be sold by a qualified chemist, and have his name and address on it. He submitted that though there were two ingredients that were poisons, the fact of this being a proprietary, which he held was the same as a patent medicine, rendered this no offence. He further contended that the putting on of the stamped wrapper showed that the Act was not intended to apply in the sense that every such patent medicine must be sold only by an authorised chemist. The interior was corked and sealed up, and these articles were sold in all shops and stores. Defendant considered he was exempted from the statute, and if the case was decided against him would take the opportunity of having the point decided in the higher court.

Mr. Lushington said Mr. Poland's contention was that patent medicine was equivalent to proprietary medicine, and that letters patent were not necessary. He would take the definition out of the Act of George III. There was a distinction in the schedule of that Act. He should hold that poison had been sold by Mr. Davenport without being distinctly labelled, that the 16th section did not apply, and that the defendant was liable. A fine of £5 with 5 guineas cost, would be imposed.

It was intimated that the case would be carried to a higher court.

Queen's Bench Division.

(Before Mr. Justice DAY and Mr. Justice CHARLES.)

A MEDICAL PARTNERSHIP QUESTION.

DUKES v. ROBINSON.—The plaintiff in this case sued to recover the last instalment payable by the defendant for the purchase of a share in the plaintiff's business. The partnership deed was dated December 31st, 1887, but was executed on the 24th of that month, and it recited that the plaintiff had carried on and conducted a medical and surgical practice at Lewisham for more than twenty years, and the average cash receipts for the last three years amounted to £2,500 per annum, as shown by the books. The Court was asked upon a special case to say what was meant by the words "the last three years." If the phrase meant the

years 1884-5-6, then the statement in the deed as to the cash receipts was correct, but if the three included 1887, then it would be incorrect. The Court held that the years referred to were those of 1885-6-7, and there was judgment upon that special case for the defendant.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odontological Society of Great Britain.

THE ordinary Monthly Meeting of this Society was held in the Society's Rooms, 40, Leicester Square, on May 2nd, Mr. J. HOWARD MUMMERY, M.R.C.S., L.D.S., President, in the Chair. There was a good attendance of members, and among the visitors were Sir William MacCormac, Mr. Stanley Boyd, Mr. Eve, and Dr. Maunsell (Nuneaton). After transaction of formal business,

The CURATOR stated he had received two teeth for the Museum, each being a first lower molar with three fangs. These were presented by Mr. Oswald Fergus, of Glasgow.

Mr. STORER BENNETT also exhibited the skull of a Malayan bear, which showed extensive alveolar abscesses, two being in connection with the upper and one with the lower jaw. The root of the upper canine had been fractured across. Mr. Bennett thought multiple abscesses occurring in animals while in confinement were to be accounted for by the fact that the irritation set up by the initial abscess induced the animal to grind his teeth against the bars of the cage, and so do them damage.

Mr. S. A. COXON narrated a case of "cystic sarcoma" of the superior maxilla. The patient was sent to Mr. Coxon, November, 1890, and then had an elastic swelling in the upper jaw of a bluish colour; this had been growing for three years. There was a carious tooth subjacent. The patient objected to operation, as she was *enceinte*. It was thought at this time that the tumour was of a simple nature, and so it was punctured under chloroform and a glairy fluid escaping with much bleeding, it was found requisite to plug the cavity with carbolized tow. As the swelling persisted, the patient was, in January, 1891, sent up to St. Thomas' Hospital, and Sir William MacCormac operated, removing the upper jaw on the affected side. The growth was found to be encapsuled and myeloid. Mr. Coxon subsequently made and inserted an artificial denture to obviate deformity. A piece of pure tin having been taken, it was struck down to the model of the mouth over the portion which it was intended the vulcanite should not touch. It was packed in the usual way, and when the case was vul-

canized the tin was peeled away, with the result that the vulcanite was left with a hard polished surface, which was not in absolute contact with the tissues. In this way Mr. Coxon hoped to obviate injurious rubbing.

Sir WILLIAM MACCORMAC said when he saw the patient she evidently had a central tumour of the upper jaw, which presented on the outer side of the alveolar process and was thought to be probably of a myeloid nature. He described the method of operating, and dwelt upon the necessity of ensuring accurate co-adaptation of the cut surfaces to ensure absence of deformity. Myeloid tumours were, he thought, more rare in the upper than in the lower jaw, and he hoped the case they were discussing would prove to be one of the least malignant forms of sarcomata.

Mr. FREDERICK EVE thought for the sake of clearness Mr. Coxon should alter the title of his communication to "a case of central myeloid sarcoma," as "cystic sarcoma" was a term formerly employed to designate multilocular cystic growths of an epitheliomatous nature.

Mr. COXON, in reply, thanked the speakers for their suggestions, and demonstrated the patient and the denture which she wore, and which obviated the falling in of the soft parts.

Mr. STANLEY BOYD then read a paper entitled "Suggestions of a Plan for preventing Lateral Displacement of the Chin after removal of a portion of the Lower Jaw." The great misfortune associated with removal of portions of the lower jaw for disease or accident had always been the resulting deformity, and Mr. Boyd had always considered that some method could be devised to get over this. Of course, asepsis was an essential condition in all plastic operations, in order to secure the encapsulation of foreign bodies introduced to maintain readjustment between body surfaces, *e.g.*, as in operations for wiring bones, &c. Asepsis was practically an impossibility in the mouth. Bone grafts obtained by implanting periosteum were liable to become absorbed, but successful transplantation of bone had been effected under rigid antiseptic precautions. In the case of the jaw, however, success could only follow such methods on the rarest occasions, and hence the hopeless feeling with which such cases were regarded. Dentures had, as a rule, failed to prevent displacement, having only a superficial and often a very poor hold. The shrinking of the granulation tissue exercised too great a force to be easily resisted, and dentures, to be successful, required to be assisted by some sort of a spanner between the cut ends of the bones. It had to be decided whether a spanner made of some unabsorbable material could be made to heal over. Mr. Boyd, however, contented himself at first with using a temporary spanner, intending to remove it after cicatrization was complete. He narrated a case sent to him by Mr. J. F. Colyer. The patient, aged twenty, who was exhibited, had had one of her front teeth on the left lower removed in October, 1889, to make room for another. Two months later a small tumour appeared near the site of extraction. This

grew slowly, and after about ten months Mr. Boyd removed a portion of the jaw around and wide of the growth; but the body of the jaw was left intact. A recurrence, however, appeared after six months, and a free operation became necessary. It seemed most important to save the continuity of the arch of the jaw, so that structure was divided by vertical incisions wide of the growth, and the intervening portion excised, without, however, completely severing the body of the jaw. Unfortunately, this little ridge of bone—the remains of the body of the jaw—became broken at both ends during the operation. This fragment was, however, sutured, and union *in situ* took place. A further recurrence taking place, it became necessary to remove a further portion of the jaw, and the bridge of bone, which although apparently healthy, was thought to be safer out of the way. To prevent flexion of the posterior fragment, and secure separation of the two fragments of the jaw, Mr. Boyd brought a steel knitting needle to a suitable length, fixing the hinder end into the dental canal, and the anterior end into a pit bored in the anterior fragment. The mucous membrane and skin were sewn together separately and the jaw maintained at rest. As a sinus remained, an endeavour to remove the needle was made, but it could not be felt anywhere, and so no further attempts were made and the pricking and other sensations disappeared. The wound completely healed, and the present state of the patient is, she is comfortable, can separate her incisors for an inch, and can close her jaws with some force; the chin is in the middle line, and the bite is perfect. The soft tissues have fallen in on the left side, the left half of the lower lip is a little wasted, and the cheek slightly swollen, probably from impaired venous return. In subsequent cases Mr. Boyd would recommend the use of a stouter bar, and the division of the internal pterygoid muscle. Finally, he asked for suggestions as to the best material for the spanner. Mr. J. F. Colyer, who had charge of the dental requirements of the case, three weeks after the operation inserted a vulcanite splint made in the ordinary manner, which encircled the remaining teeth, the bite being arranged so as to check lateral movements. The splint was subsequently replaced by an ordinary denture.

Mr. NEWLAND-PEDLEY congratulated Mr. Boyd on the success of his case. Although sometimes success followed the ordinary methods, yet in most cases deviation of the chin towards the injured side occurred. Among cases he cited one which after removal of necrosed bone no displacement occurred, due probably to the periosteum having been left and forming new bone.

Mr. H. J. BADCOCK had a similar case to that of Mr. Boyd's; Mr. Rose resected a portion of the lower jaw, leaving periosteum, but the chin fell over to the side of the removal. A Gunning splint answered very well, but Mr. Rose had to resect further. The patient, when last heard of, was doing well, and a fibrous growth had sprung from the periosteum, giving a good result.

Mr. J. STOCKEN suggested platinum as a material for the spanner. Mr. C. C. Robins, reminding the Society of a case he had brought before them of the tolerance of glass in the cheek for years, thought that material might answer, and Mr. H. Lloyd Williams mentioned that Dr. Kingsley had employed gold as a spanner in some cases. Mr. Cunningham referred to M. Ollivier's book, and suggested that a dentist should be called in before the operation, to model the parts, which would enable him to effect better results. Mr. Storer Bennett said that lead bullets had been known to have been dropped into the pulps of living incisors without causing irritation, dentine forming round them, whereas steel rusted, and caused great irritation. Mr. West suggested that by coating the steel spanner with lead this objection would be removed. Mr. Sidney Spokes thought a vulcanite bar, with holes drilled through and plugged with sterilised sponge, would act, not only efficiently as a spanner, but would assist the healing process.

Mr. ROUGHTON showed an ivory exostosis which he had removed from the lower jaw of a young woman. The growth was of twelve years' duration; it was perforated by a canal for the mental nerve. In structure it resembled compact bone, but the Haversian systems were more irregular.

Mr. EVE thought the position of the growth excluded its being an odontome.

Mr. STANLEY BOYD then related a case in which he had been obliged to operate to relieve closure of the jaws. The patient, a girl aged twenty-two, was admitted into Charing Cross Hospital under Mr. Boyd, complaining of inability to separate her jaws. At the age of seven a tooth had been extracted, and apparently extensive necrosis of the left half of the lower jaw had ensued. That half of the jaw was further ill-developed. The inflammatory troubles following necrosis had led to fixation of the jaw, the movement being slightly freer on the right side. Under an anæsthetic the jaws were forcibly separated with screw gags to the extent of three quarters of an inch. Contraction, however, soon came back, and the year subsequently she was readmitted into hospital, and the left condyle of her jaw was excised through a short vertical wound in front of the tragus. The jaws were then forcibly separated to three-quarters of an inch. Primary union occurred, and the patient was comfortable after a lapse of two years, although Mr. Boyd considered the range of movement to be not quite satisfactory. Some slight fulness on the left side of the face persisted, due, it was thought, to the displacement of soft parts.

Dr. H. W. MAUNSELL (Nuneaton, New Zealand) had operated in similar cases, and had found the stiffness due mainly to the internal pterygoid muscle; division of this obviated the condition.

In answer to a question from Mr. Stanley Boyd, as to what was the

experience of members of the Society as to the opening of alveolar abscesses through the face, Mr. FREDERICK EVE stated that failing to drain alveolar abscesses through the mouth, he had opened them through the skin without causing depressed cicatrices.

Mr. JAMES STOCKEN had prevented the bursting of an abscess through the face by painting with flexible collodion, and the use of hot fomentations in the mouth.

Dr. MAUNSELL had frequently been obliged to open these abscesses through the face, but could recall no instance of depressed cicatrix ensuing thereupon.

Odonto-Chirurgical Society of Scotland.

The Annual General Meeting of the Society, Session 1891-92, was held on the 11th of March—the President, Mr. G. W. WATSON, in the chair. Mr. Lawson Storrow Shennan, L.D.S.Ed., 71, Leamington Terrace, Edinburgh, was nominated.

The Treasurer (Mr. MACKINTOSH) tendered his report. The income for the year amounted to £45 7s. 3d. derived from members' subscriptions, entry monies, and interest on deposit-receipt and bank account. This, with a balance of £38 5s. 11d. from the previous year, and the deposit-receipt of £105, made a sum total of £188 13s. 2d., from which, after deducting expenses, a balance of £167 2s. 2d. was left as representing the total funds of the Society.

Mr. MACGREGOR proposed and Dr. GUY seconded the re-election of the present office-bearers for a second term of office, as follows :—Mr. G. W. Watson, President ; Mr. J. Stewart Durward, Mr. John Stirling, Vice-Presidents ; Mr. James Macintosh, Treasurer ; Mr. J. Graham Munro, Curator and Librarian ; Mr. John S. Amooore, Secretary. Councillors, Messrs. Price, Biggs, Wilson, and Macleod.

The proposition was carried.

This concluded the formal business.

Mr. JOHN TURNER exhibited the lower jaw of a man, aged 56, in which there were seven præmolars present. On the right side there were four—two in the normal position, and two instanding, on the lingual aspect—the four forming a rough square. On the left side there were two standing in the normal position, though somewhat crowded out of line, the third standing in the lingual side between the two, forming a triangle. The supernumerary teeth possessed all the characteristics of the normal bicuspid teeth.

The meeting then adjourned to a darkened room, and

Mr. J. LESLIE FRASER (Inverness) exhibited his Universal Electrical Mouth Illuminator and his Dental Electrical Switch Board. Regarding the former, Mr. Fraser said that, so far as concerns its surgical uses, it would be found universal in its movements. It con-

sists of a short bracket-arm, supporting an arrangement of joints, to which is attached a couple of tubes, one telescoping into the other. A small fork is jointed to the top of the inner tube. In this fork lies a

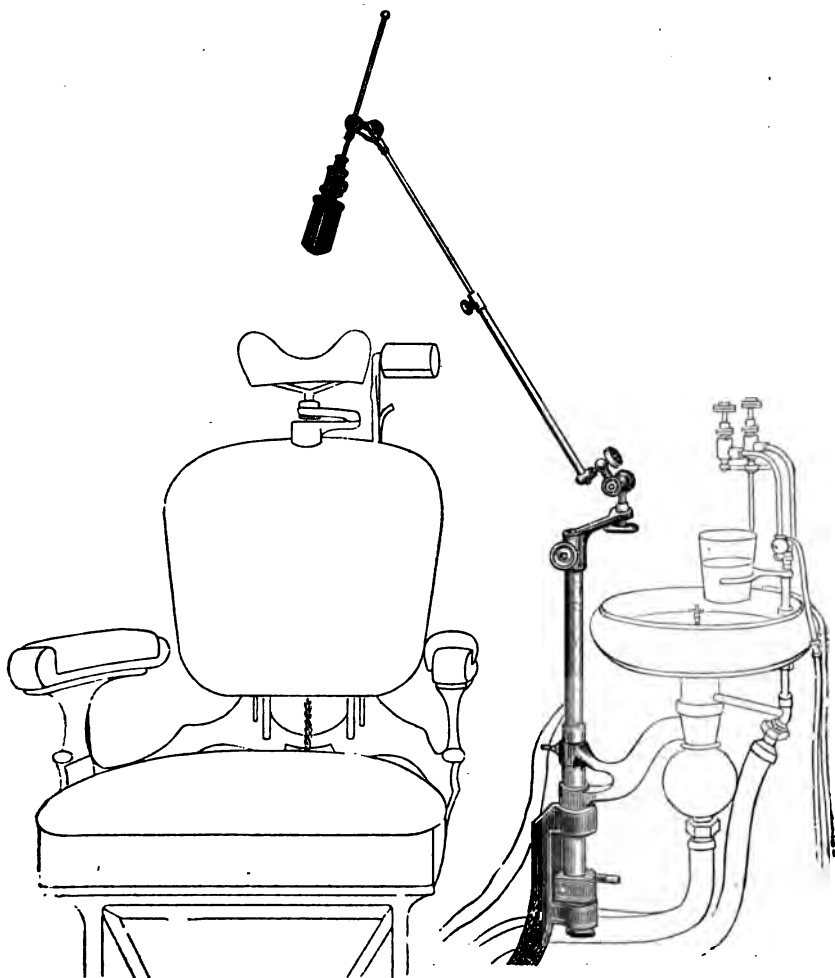


FIG. 1.—Stowing the lamp in position for throwing the light upon the lower teeth.

third tube, which slides backwards and forwards as required. At one end of this sliding tube is a switch lamp-holder, which carries the five-candle power lamp. A metal shade, having a bayonet joint at one

end, and a condensing lens at the other, is attached to this switch-holder. When the tubes are telescoped the height of the lamp is about fourteen inches, but it can be extended to double that length. The lamp can be changed from one position to another instantly, and is absolutely rigid in any of them. Its parts are easily taken asunder if necessary. Should the old lamp need to be replaced by a new one, it can be done in less than one minute, no screws being used to secure the connections. The switch close to the lamp is one having a "special quick action," by means of which the light can be turned on

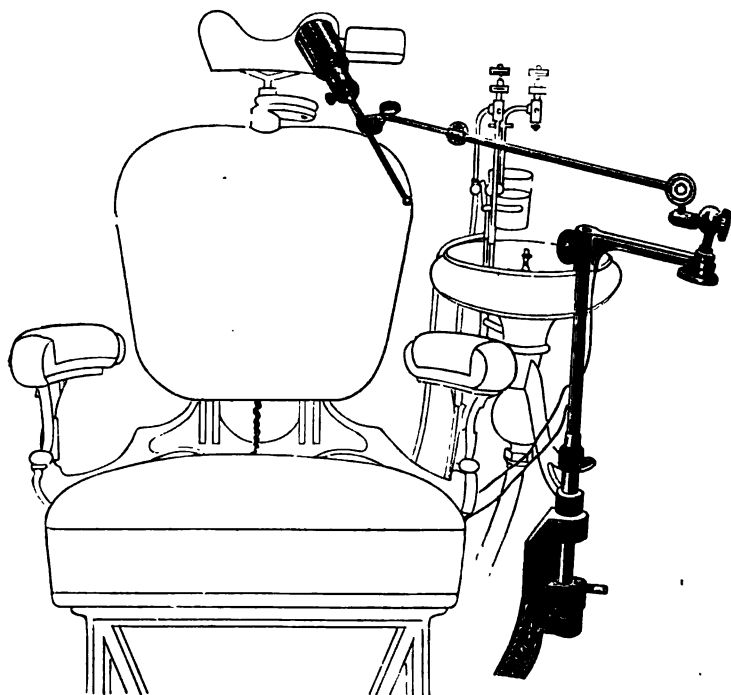


FIG. 2.—Showing the lamp in position for directing the light upon the upper teeth.

or off at pleasure. For a dentist who uses accumulators, this means a considerable saving, as the current can be turned off without any inconvenience every time he leaves the patient's side. A novel feature is that no metal reflector is necessary, as the lamp is half silvered and afterwards coated with copper, like a mouth mirror. The light can be thrown straight down on the lower teeth by simply extending the tubes, and turning down the lamp-arm to the required angle (fig. 1).

When directed into the mouth, the light does not fall on the eyes of operator or patient. It is impossible to place the patient's head in any workable position, and yet be unable to throw the light into the mouth. The conducting wires are placed inside the tubes, so that there is no chance of their getting entangled with the patient's dress, with the arm of the chair, or with any of the appliances usually about.

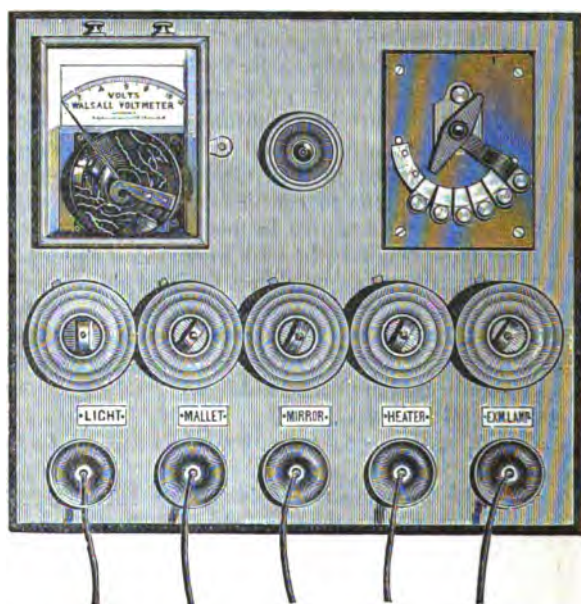
Mr. FRASER then proceeded with the following remarks: Electricity is becoming more and more important to the dental surgeon, and it is obvious that if he wishes to keep abreast with the times, he must be prepared to adopt it, in one form or another, in his practice. To one fortunate enough to be established in a town where an electrical main lies at his very door, this is a simple matter. But the dentist not so situated finds the adoption of electricity a more difficult problem. Any appliance, therefore, which will facilitate its use will be welcome at this time. I take this opportunity of congratulating Mr. Boyd Wallis on the resistance board he has brought to the notice of the profession. It is at once beautiful and useful. Unfortunately, however, its uses are limited to such towns as have electrical companies to supply the current to consumers. I presume there is not more than one town to the hundred in this country so supplied, and the large proportion of dentists who wish to use electricity must either employ primary batteries or accumulators of one kind or another. I have been using the latter for over two years, and have had much pleasurable satisfaction from them. But there are certain difficulties attendant on the use of accumulators. I refer to the present unsatisfactory methods, so far as dentists are concerned—

I. Of regulating the current.

II. Of easily telling, at any time, the state of the cells, and when they need recharging.

What can be more annoying to the dentist who is busy building up a gold filling on a dark day, than to find, when he is perhaps two-thirds through, that the electric lamp, by means of which he is working, suddenly grows dull, and soon refuses to give any light? Such an occurrence means dissatisfaction to the patient, and confusion and chagrin to the operator. All our electrical instruments take a certain amount of current to work them—some more, some less—and many dentists find not a little difficulty in determining the exact amount of current necessary to work one or other of the various appliances. Many lamps are burnt out by having more current thrown on than the filament will stand. The result is, that dentists who would otherwise use electricity, decline to do so, urging that its use in the operating room is tiresome, unsatisfactory and expensive. To illustrate this, I call to mind an experience I had in the use of a very small lamp, about one-half candle power. It was supposed to take four volts. I knew that one accumulator should give about two volts, and consequently that two of them would be necessary. My cells

had been in use for several weeks. I connected two of them to the lamp, with the result that the light produced was quite inadequate. What was more natural than to attach one more cell? This addition, I was sure, would give sufficient light. It did so—for an instant, after which all was dark, and the inside of the lamp had become coated with carbon. The filament could not resist the extra two volts, and had burnt out. Now, could I have applied, say five volts, I am of opinion that the lamp would have worked beautifully. Had I even had the means of knowing the exact state of the cells, I would most likely have saved my lamp. This and similar experiences caused me



ELECTRICAL DENTAL SWITCH BOARD.

to adopt a switch-board with resistances, by means of which I could obtain any quantity of current desired; but this proved an expensive and somewhat unsatisfactory contrivance. I was running off more current than was actually necessary for the working of certain instruments, and hence the cells required recharging oftener than before. The resistance coil was the cause of this. I soon decided to discard such arrangements, and to try to devise a simpler and more satisfactory means for obtaining the ends in view. For this purpose I have had made a switch-board for use with accumulators, which I will take much pleasure in describing. It is arranged for use with six accumu-

lators, as I find this number more economical than five, because my accumulators do a journey of over fifty miles each time they are recharged. At the top, to the right of the board, which is made of polished mahogany, is what I will call a master-switch. By means of this I can throw on any number of volts up to the full working powers of the cells. Arranged along the lower half of the board are five separate "quick-brake" switches. Each of these has an automatic cut-out, which will fuse should too much current be thrown on. Below these switches are five moveable plug attachments, from which comes the flexible double wire which conveys the current to the various appliances. On the upper left-hand corner is a volt-meter, registering any voltage from one-tenth to twelve. Beside this, to the right, is a smaller switch of the same kind as the five referred to above. This one is used when it is desired to pass the current through the volt-meter after it has gone through the master-switch. In this way, the exact voltage turned on at the master-switch is registered. Underneath the five switches are a corresponding number of ivory plates, each one bearing the name of the appliance to which the plug-attachment belongs. The names engraved on my own switch-board are :—

1. Light, *i.e.*, the lamp by which I operate. 2. Mallet. 3. Mouth-mirror. 4. Heater. 5. Exam. Lamp.

These names may be varied, of course, according to the instruments used by the operator. To illustrate the use of the board, suppose I wish to use the electric mallet, which I find requires six volts to work it efficiently. I attach the mallet to the flexible cord, connect the volt-meter to the master-switch by turning the small switch which, as already described, is placed to the right of the meter, and then gently move the master-switch along its course until the volt-meter registers six volts. This it will do the instant the proper amount of current has passed through the master-switch. Next, I cut off the current from the volt-meter, as I have no further use for it, knowing that the exact amount of current necessary is passing through the master-switch. All that is left to be done is to turn on the switch placed above the ivory tablet marked "mallet," and the mallet is ready for work.

It is of great importance that accumulators should not be allowed to run down too far, for when this happens there is buckling of the plates, and consequently short-circuiting. It is therefore desirable that the dentist should have some ready means whereby he can ascertain at any moment the exact state of the cells. This is accomplished by turning first the master-switch around to the right, as far as it will go, and then the small switch which admits the current to the volt-meter. The indicator will now show to a tenth of a volt the condition of the accumulators. There is a separate switch for each plug in order that the current may not be allowed to pass to any other instruments except those in use. This arrangement does away with the

necessity which I would otherwise have of detaching the various instruments from their respective wires. I keep the five different instruments in a small cupboard, each connected with its own conductor. They are all thus ready for use.

The switch-board, complete, costs £5 12s. It was manufactured by Messrs. Woodhouse & Rawson, Limited, to whom much credit is due for carrying out the instructions given them most efficiently.

Mr. W. Howard Gray (Glasgow) exhibited a small mouth illuminator, for use in the mouth when gold-stopping, &c. It consists of a small glass globe, $\frac{1}{4}$ of an inch in diameter and $\frac{1}{4}$ ths of an inch in length, inside of which is a small electric lamp, kept absolutely cold by a continuous current of cold water, either supplied from a tank or fountain-spittoon. The battery used is two Y-type "E.P.S." accumulators.

On returning to the lecture-room,

The PRESIDENT remarked that they were very much indebted to Mr. Leslie Fraser for his exhibit of electric lamp, with universal movement and switchboard, with voltmeter, which was one of the most perfect pieces of apparatus he had seen, as it gave one perfect control over the amount of electricity used, as well as being most useful in enabling them to determine the amount of electricity present in accumulators at any time. The thanks of the Society are also due to Mr. Gray for exhibiting his electric mouth mirror, the heat rays being cut off, making it most valuable for oral examination, the diagnosis of antral disease, and on dark days in filling teeth with gold, as the lamp might for any length of time be retained in the mouth without inconvenience. Mr. Gray was to be congratulated on designing and making so useful an instrument.

Mr. SHIACH, in referring to Mr. Fraser's exhibit, remarked that he had used, for the past six months, an electric apparatus of a similar description—the main difference being that his was set upon a pivot in the centre of an ordinary Allan bracket table, instead of being attached to an upright stand. Mr. Shiach thought that the addition of a switch close to the lamp (as in the exhibit) was of considerable advantage, and suggested, as a further improvement, some arrangement by which the intensity of the light could be regulated, as in mouth lamp. The apparatus used by Mr. Shiach was supplied by Messrs. C. Ash & Sons. With reference to the utility and desirability of electricity in this connection, Mr. Shiach was of opinion that a great saving was effected, so far as the eyes were concerned, while at the same time the heat, so troublesome in gas and oil arrangements, was reduced to a minimum. The electric light was compared to that of gas reflected through a vessel of water, and to the light given by crystal paraffin used in a Telschow lamp. Mr. Shiach's experience led him to state unhesitatingly that the electric light, while more brilliant, strained the eyes less—the latter advantage being due, in his

belief to the absence of heat. He thought it would be a simple matter to adapt the cold water stream arrangement as suggested by Mr. Howard Gray, in the case of the mouth lamp, and so prevent any heat at all.

Mr. AMOORE had been extremely interested in the demonstrations they had just witnessed. With regard to Mr. Leslie Fraser's electric-lamp, there was no question as to the brilliancy of the light, and he would much have liked the opportunity of testing it, as, on a dark winter afternoon, artificial light was too often a necessity. He used a water globe in front of a large gaslight—tinting the water green with a weak solution of copper sulphate. This he found very effective for most purposes; but in using it for gold-fillings of a protracted nature, he found that the glitter of the gold was very trying to the eyes. He was assured by Mr. Shiach, who spoke from experience, that the lamp in question gave a very soft light, and he had not suffered in a similar way when working with it. It was, however, a matter for personal experiment; and in any case, great credit was due to Mr. Fraser for the methods he had devised in adapting the lamp to its required purposes. By the flexibility of its connection, it could be so arranged that a narrow beam of light could be focussed upon the mouth without affecting the eyes of either the patient or operator; or if the removal of a tooth was necessary, and the contingency of the patient moving his head had to be reckoned with, a more diffused light could be obtained by adjusting the focus accordingly.

With regard to Mr. Howard Gray's small mouth illuminator, it was the most perfect he had seen, the difficulty of the irradiation of heat—a fatal one unless duly reckoned with—being completely overcome, so that the lamp could be retained in the mouth for an indefinite period without any rise in temperature; and the mechanical dexterity exhibited in bringing about this desired end reflected no little credit upon its originator. It was probably due to this same skill which enabled Mr. Gray to work without finding the lamp in the mouth an encumbrance; but to him (Mr. Amore) it seemed that the addition of the illuminator, when the mouth had already possibly a saliva ejector and other accessories inside, was rather a serious drawback. However, this might be only a matter of practice; and, in any event, it would be supremely useful at times, and was an important addition to our operating-room.

The Vice-President (Mr. John Stirling) taking the chair, Mr. Watson proceeded with his paper on "A new and improved method of treatment in empyema of antrum."

In cases of empyema of antrum, I have long felt that a method of treatment which would facilitate the cure of, and reduce the period of treatment required, was a great desideratum. For the last two years I have been trying methods which are a valuable aid in this direction, and which, I thought, it would interest you to know about. In the

first place, the metal drainage tubes, as commonly applied, are far too small to effectually treat such conditions ; so the first thing I did was to increase very considerably the size of tube* used (a specimen of which I hand round) so as to enable me to employ dry antiseptic or other powders, to insufflate the cavity of the antrum with, or syringe it out in the usual manner. At the suggestion of my colleague at the Throat Infirmary, Dr. Hunter Mackenzie, we tried curetting the lining membrane of the antrum in bad chronic cases, which can readily be done through the drainage tube by means of instruments which I specially devised for the purpose, and which are now before you. We reasoned that if diseased nasal and other mucous membranes were benefited by the operation, good results would be obtained in bad antrum cases, and this we have found to be quite the case. The curetting instrument is passed through the antrum tube, and the cavity thoroughly scraped out, taking care not to use too much force ; the cavity is then well washed out with hot boracic solution. This operation can be repeated in four weeks or so if necessary, but it is generally found that once is sufficient. It has been found that, by means of this operation, the use of a large tube, combined with antiseptic insufflation and douching, three to eight months is sufficient for the cure of the worst cases—the usual run of such being from eight months to two years. Some discussion has been going on in the *Lancet* and other medical journals, as to whether empyema of the antrum has its origin, as an extension of disease, from the nasal mucous membrane, or the reverse. From the experience and history of a considerable number of cases which I have had through my hands during the last eight or ten years, I am inclined to believe that the most frequent origin of empyema of antrum is the presence in the jaw of abscessed teeth, and the constant flow of irritating pus over the nasal mucous membrane must cause, in a number of cases, disease of that membrane, which accounts for the frequency with which we find associated with disease of the antrum polypoid growths, or in hypertrophied or diseased condition of the nasal mucous membrane. Of course, I do not deny that in some cases disease of the antrum may primarily have a nasal origin, but am convinced that the other is the more frequent of the two. An extremely instructive and interesting case of empyema of antrum came into my hands in August, 1890, the history of which, I thought, would interest the members. Patient, male, *æt.* about forty, was from England, and had been suffering from antrum disease for five years. He had consulted several medical practitioners, followed their advice, and with no benefit. About a year previous to his coming to me, the patient

* The tube in question measured an inch, with a diameter of 5-16ths of an inch at the wider end, which was inserted into the antrum, narrowing to a diameter of 3-16ths at the other extremity.

had visited the Edinburgh Royal Infirmary, and was told to get several teeth extracted. He went to a dentist in the neighbourhood of where he resided in England, and had them extracted. Dentist gave patient an instrument (a hand-bur) to open into the antrum, which he managed to do, and was in the habit of keeping a piece of pointed wood in the hole to keep it from closing up. Patient went one day to the same practitioner to let him look at it, and get it syringed, out. After working away for some time at the opening into the antrum, he told patient there was no piece of wood in the opening. Patient insisted there was, but was assured that if it had got into the antrum it would do no harm. Patient was very pale and unhealthy-looking when I operated on him, the purulent discharge from both nose and antrum being very excessive. I enlarged the opening previously made by patient through the socket of first molar, curetted the membrane, put in a large drainage tube, and gave directions about syringing and insufflating the antrum. He returned home, but every report I got from him was to the effect that he was not one whit better. Some months after I asked him to come through to Edinburgh again, when I got Dr. H. Mackenzie to examine carefully the nasal cavities, but they were found to be all right. He returned home again, but the same bad reports came from him, and his case fairly puzzled me. In the month of May, however, I got a note from him, which explained the difficulty. He informed me that, while sneezing a day or two before, the piece of wood, about which he had never told me anything, came down the antrum tube into his mouth, having lain in the antrum for two years. The piece of wood which I hand round is nearly an inch long, tapers to a point, and is sixth of an inch at its thickest end. It is a curious fact that I did not come across, or feel, this foreign body when curetting the antral cavity, and shows how much care should be exercised in the examination of the antrum in prolonged and difficult cases. After the removal of the wood, matters improved very rapidly; and from a note which I had from the patient the other day I gather that he is about all right again.

Mr. AMOORE remembered a case not unlike the somewhat unique one referred to by Mr. Watson. It occurred to an hospital patient who was under treatment for antral trouble. An attempt was made to enlarge an opening into the antrum, which was already patent after the removal of the first molar, by inserting a piece of dried sea-weed. On attempting to remove this plug, the upper portion had become dilated within the antrum, and, as was subsequently discovered, had become detached. After a fruitless and somewhat protracted course of treatment with boracic and other lotions, extending over two or three months, the opening was enlarged under an anæsthetic, the foreign body discovered and removed, a cure speedily following.

Mr. MACLEOD said, While fully appreciating Mr. Watson's method of

treating antral disease, I think that the same end can be gained in a much more simple and direct manner. I have been in the habit of keeping the opening into the antrum patent by means of a rod or wire. This rod is simply a cylindrical prolongation or projection from a little vulcanite plate fitted over the socket, and which plate is attached to an adjoining tooth. The diameter of the rod is about $\frac{1}{4}$ or $\frac{1}{8}$, and this I find quite sufficient for the purpose of irrigation or drainage. In this little device you have just exactly what you say you have, viz., a loose-fitting plug, which prevents the wound closing, and which is easily removed, and is itself easily kept clean. Through the opening thus made, and kept patent in the way indicated, the antral cavity can be easily flushed by the patient filling the mouth with water—medicated or plain—and forcing it into the cavity and through the nasal opening by the action of the tongue and buccinator. This is quite as efficient as a syringe, and much more convenient and comfortable for the patient. The curette I have never used, and would be very chary in using in the heroic manner advocated by Mr. Watson. Scraping the mucous lining and the periosteum from the bone would, I anticipate, induce a state of matters which may possibly account for the prolonged continuance of trouble in some of Mr. Watson's cases. A little spoon-shaped instrument is sometimes of use in breaking up and removing the cheese-like mass present in some old and long-neglected cases. With regard to Mr. Watson's tube, might I venture to say that it is a misnomer when he calls it a drainage tube? True, it is a tube, and *would be* a drainage tube if he left the mouth of it open; but Mr. Watson tells us that, after syringing, he *plugs* it up with sterilised cotton wool. Now the moment the plug is put in, its capability of draining ceases, and it becomes practically a solid rod in a metal sheath, with this drawback, that the sheath remains in during irrigation, and therefore cannot be so thoroughly cleansed as if it was taken out and well scrubbed with a hard brush in warm soapy water. A little washing soda in the water used for syringing the cavity is, in my mind, the most useful *antiseptic* in these cases, being both detergent and stimulating—the one thing needful being to diagnose the origin of the trouble, and remove the cause.

Dr. GUY felt that, in acknowledging his indebtedness to Mr. Watson for the manner in which he had recorded these cases, he was giving expression to the sentiment of the society. But he thought that the contents of Mr. Watson's paper, interesting and instructive though they were as clinical studies, hardly justified the title he had bestowed upon it, inasmuch as the only methods claimed as novelties or improvements in surgical procedure, were the introduction of a tube very slightly larger than those commonly used, and the employment of the curette. Concerning the first of these, he would remark that in his opinion, an ordinary rubber drainage tube of small calibre in most cases fulfilled every requirement, and, having been threaded, might most

conveniently be retained *in situ* by a silk ligature cast round an adjacent tooth. He thought the tube was very commonly retained too long, becoming a source of irritation, and keeping up the condition it was intended to alleviate. Cases had come under his notice in which it was not too much to say that the removal of the tube had cured the disease. Concerning the curetting, the data were insufficient for the formation of an opinion as to its value. It should be borne in mind that the loss of function by the ciliated epithelium lining the cavity involved the keeping patent of the artificial opening to perpetuity. Long standing ulceration or exuberant granulation being present, he could conceive the expediency of this treatment; but the difficulty of locating such lesions, and confining the scraping to the parts thus diseased, in an irregular and sometimes multilocular cavity like the antrum, would prevent its general adoption. His own feeling was that, second only in importance to a correct diagnosis of the nature and cause of diseased conditions involving the mucous lining, periosteum, or bony wall of the antrum; was the treatment of these conditions in accordance with general surgical principles, and by the simplest methods compatible with efficiency. In two recent cases of very bad chronic empyema, one of no less than six years' standing, the treatment he had adopted had resulted in the cure of the condition—in the first case, after five months; in the second, in six weeks. Briefly described, it was as follows:—The antrum was punctured (by the burring engine) above the alveolus, over the situation which the second molar would have occupied had it been present. During the first week the cavity was syringed daily with a solution of Tr. Iodi in water (2 drchms. in 10 ozs.); afterwards boracic lotion was alternated with insufflation of resorcin—the patient supplementing these measures by several times daily forcing through from the mouth, with the opposite nostril closed, a lotion of phenol sodique. An india-rubber drainage tube was inserted, and tied, in the one case, to the wisdom tooth; in the other, to the central incisor—these happening to be the only teeth available. The tube was kept in for a fortnight. There was nothing remarkable in the further history of these cases, which progressed steadily towards recovery. He was hardly likely to meet many cases justifying a more unfavourable prognosis than these two appeared to do when first seen, and was impelled to the conclusion that the vast majority called for no more heroic treatment, and demanded the exercise of no more ingenuity in the construction or retention of tubes.

Mr. WATSON, in reply, said, as regards Mr. Macleod's remarks, his method of using a vulcanite rod does not commend itself to him, as it will retain and not drain away the purulent secretion from the antrum, the antrum tube, plugged with absorbent antiseptic wool, being a better, more efficient method of treating such cases. He states, also, that by the use of plain water in washing out the antrum

he can get as good results as with antiseptics. This he decidedly dissented from, and could hand over to Mr. Macleod cases without number where he might go on for ever treating with water and get no result. Mr. Macleod, and also Dr. Guy, recommend the washing out of the antrum by the patient forcing the fluid through the artificial opening, by means of the buccinator muscles. This he considered both an objectionable and unscientific proceeding, as by so doing the fluid gets charged with pyogenic and other microbes from the oral cavity, likewise *debris* of food, which it is most important to exclude—the method of syringing, through tube fitting into antrum tube, not being open to this objection. Mr. Rees Price asked if it was from the history of such cases which I have had through my hands that he was able to say that the most of them had a dental origin? Yes, it was, as it was after careful investigations, assisted by a nasal expert, that this conclusion had been come to. Dr. Guy wished to know what the object is in curetting the antrum. This is, to remove from the membrane diseased growths or masses of bacteria, which are so commonly found in conditions of this description, and which can readily be demonstrated by making cover glass preparations of pus. Curetting, as he advised, consisted in merely scraping lightly over the diseased membrane, and not scraping it bare to the bone, although he might remind Dr. Guy that some of the best nasal surgeons are in the habit nowadays of scraping away freely diseased nasal membrane, with good result. Dr. Guy seemed to misunderstand his method of opening up the antrum, which is done through the anterior alveolar border of socket of M $\frac{1}{6}$. Mr. Campbell and Dr. Guy both seem to think that a too long retention of the tube is injurious, and prevents closure of artificial opening. This, he assured them, is erroneous, as he has repeatedly had tubes in two years and longer (before adopting the large tube), and had not the slightest difficulty in getting the hole to heal up in a week or less. On the other hand, he had repeatedly seen the bad effects of removing the tube too soon, as several cases have been through his hands which had been operated on and treated by other surgeons previously, and the tube removed too early, resulting in a far worse condition of affairs, and necessitating the reopening up of the antrum and further treatment.

In the evening the annual dinner of the Licentiate in Dental Surgery and the Odonto-Chirurgical Society was held in the Royal Hotel—Mr. Walter Campbell in the chair, Mr. J. Leslie Fraser acting as croupier.

THE following are recommended by Dr. Hugenschmidt (*La Semaine Medicale*) as useful applications in cases of acute pulpitis: Menthol, 18 grs., chloroform, 30 grs.; or, Hydrochlorate of cocaine and hydrochlorate of morphia, each, 4 grs., and creosote sufficient to make a paste of the consistency of cream.

WE have received from Dr. A. O. Hunt, of Iowa City, the following circular for publication :—

The World's Columbian Dental Congress,

TO BE HELD IN CHICAGO, AUGUST 17TH TO 27TH, INCLUSIVE, 1893.

Chairman: Dr. W. W. Walker (67, West 9th Street, New York City). *Treasurer*: Dr. J. S. Marshall (Argyle Building, Chicago, Ill.). *Secretary*: Dr. A. O. Hunt (Iowa City, Iowa). *Executive Committee*: Dr. L. D. Carpenter (Atlanta, Ga.); Dr. J. W. Crawford (Nashville, Tenn.); Dr. W. J. Barton (Paris, Texas); Dr. J. Taft (Cincinnati, Ohio); Dr. C. S. Stockton (Newark, N.J.); Dr. L. D. Shepard (Boston, Mass.); Dr. W. W. Walker (New York City); Dr. A. O. Hunt (Iowa City, Iowa); Dr. H. B. Noble (Washington, D.C.); Dr. Geo. W. McElhaney (Columbus, Ga.); Dr. J. C. Storey (Dallas, Texas); Dr. M. W. Foster (Baltimore, M.D.); Dr. A. W. Harlan (Chicago, Ill.); Dr. J. S. Marshall (Chicago, Ill.); Dr. H. J. McKellops (St. Louis, Mo.). *General Finance Committee*: Dr. L. D. Shepard (330, Dartmouth Street, Boston, Mass.), *Chairman*; Dr. A. L. Northrop (57, West 49th Street, New York); Dr. T. W. Brophy (96, State Street, Chicago, Ill.).

DEAR DOCTOR,—As you are doubtless aware, by the concurrent action of the Southern Dental Association, July 16, 1890, and of the American Dental Association, August 5, 1890, it has been decided to hold in Chicago, in 1893, a World's Columbian Dental Congress.

Each Association appointed five men from its own membership, and each Association voted "that this Joint Committee have power to fill all vacancies, and shall add to its membership either one, three, or five more members, as it may deem advisable, and when this Committee is so completed it shall be clothed with full power to take such action as in its judgment it may deem best for creating an organization for the purpose of holding a dental meeting in Chicago in 1893, which the reputable dentists throughout the world shall be invited to attend, and that any action that this Committee may take in the premises shall be final and binding."

The Southern Association appointed Drs. Carpenter, Crawford, Barton, Taft, and Stockton. The American Association appointed Drs. Shepard, Walker, Hunt, Noble, and McElhaney. The Joint Committee elected Dr. Storey, retiring President of the Southern Association, Dr. Foster, retiring President of the American Association, and Drs. Harlan, Marshall, and McKellops; and so completed the Committee.

The General Executive Committee, thus appointed and empowered, at its first meeting at Excelsior Springs, in August, 1890, elected as Chairman, Dr. W. W. Walker; as Treasurer, Dr. J. S. Marshall; as Secretary, Dr. A. O. Hunt; and as General Finance Committee, Drs. L. D. Shepard, A. L. Northrop, and T. W. Brophy. It has held meetings

at Washington, in January, 1891 ; at Saratoga Springs, in August, 1891 ; and at Chicago, in January, 1892. The next meeting will be held at Lookout Mountain, in July, 1892.

The Committee has transacted a great amount of business, and with remarkable harmony and unanimity. As an illustration of its devotion to the trust committed to it by the two great Associations of the country, all but two of its members were present at the recent mid-winter three days' meeting in Chicago. As a further illustration of its intention, it has voted "that any member of this Committee having failed to attend three successive meetings, without a satisfactory explanation, will be considered to have vacated his position on the Committee."

The work of the Committee so far has been largely preliminary, a detailed statement of which will be given to the profession through the journals.

The General Finance Committee has prepared this statement in advance of such publication, that those who are asked to assist it as State Finance Committees may know what has been done and what will be expected of them, so that in accepting appointments each may do it intelligently, and for the use of the State Finance Committees in soliciting subscriptions.

It is expected that papers and reports of great interest and value will be presented in such numbers and volume that the transactions will make two or three large books. It is hoped that there will be funds to print and illustrate these transactions in as full and perfect a manner as is possible, and so make the books an indispensable adjunct to the dental library and working text-books of every dentist who aims or claims to be an educated man.

As an illustration of the scope and breadth of the investigations and productions of the Congress, the following Committees have been voted, most of which are already filled and the Committees at work :—

1. A General Finance Committee.
2. A Programme Committee.
3. A Committee on Exhibits.
4. A Committee on Transportation.
5. A Committee on Reception.
6. A Committee on Registration.
7. A Committee on Printing Transactions.
8. A Committee on Conference with State and Local Societies.
9. A Committee on the History of Dental Legislation in this and other countries.
10. Auditing Committee.
11. A Committee on Invitations.
12. A Committee on Membership.
13. A Committee on Educational and Literary Exhibits.
14. A Committee on Clinics in Operative Dentistry and Oral Surgery.

15. A Committee on Prosthetic Dentistry.
16. A Local Committee of Arrangements.
17. A Committee on Essays.
18. A Committee on History of Dentistry in the United States.
19. A Committee on Nomenclature.
20. A Committee to promote the appointment of Dental Surgeons in the Armies and Navies of the World.
21. A Committee to devise means for the care and treatment of the teeth of the poor.
22. A Committee on Microscopy and Bacteriology.
23. A Committee on Prize Essays.

This completes the list of Committees so far as voted. There will doubtless be others, for it is intended to cover the whole ground of Dental Science and Art. From an examination of the list it will be seen that Committees Nos. 1, 2, 4, 5, 6, 10, 11, 12 and 16 are principally Business Committees, while Committees Nos. 3, 7, 8, 9, 13, 14, 15, 17, 18, 19, 20, 21, 22 and 23 are purely scientific.

To illustrate the work planned, Committee No. 8, styled Committee on Conference with Local and State Societies, under the general chairmanship of Dr. J. Taft, consists of a State Committee from each state of three to seven members, each State Committee working under its chairman and secretary, and making a total membership of about 200. Each State Committee, among other duties, is asked by Dr. Taft to :—

Fourth. Procure a history of dentistry in your state, giving account, so far as you can, of the pioneers, those who first practised in your state, and the date, and any matters of interest pertaining to the same.

Fifth. Give the number of dentists in your state, also the Dental College graduates. Also give number of honourable practitioners, as far as feasible.

Sixth. How many dental societies, all told, are there in your state, and what is the membership of each? How many dentists in your state have membership in societies outside of your state?

Seventh. How many in your state have added anything of value to the literature of dentistry, and in what way? And by whom?

Eighth.—What discoveries and improvements in modes of practice, instruments, appliances, or materials, have been made by dentists in your state, and by whom?

Ninth. What influence has the law regulating the practice of dentistry had upon the profession in your state?

Each State Committee is expected to do the work for its own state in as full and complete a manner as possible, and prepare a report for that state "upon the status and condition of the profession, past and present, that may give at least a proximate idea of its growth, resources, and power." Then all these statistics and material are to be turned over to Committee No. 18, as an authentic basis for its

work of preparing a history of dentistry in the whole country. Committee No. 18 consists of:—J. Taft (Cincinnati, Ohio); Louis Jack (Philadelphia, Penn); F. T. Van Wort (Brooklyn, N. Y.); F. J. S. Gorgas (Baltimore, Md.); H. L. McKellops (St. Louis, Mo.); E. G. Betty (Cincinnati, Ohio); J. B. Patrick (Charleston, S. C.).

By vote the chairman of this committee is "allowed to add to this committee any person or persons that he may deem proper, and of advantage." One can hardly realise the value of the results of the work of Committees No. 8 and 18.

It has been voted that the membership fee shall be ten dollars. To be collected only from residents of the United States.

It has been voted "that the membership shall consist of legally qualified and reputable dentists (as defined in the Code of Ethics of the American and Southern Dental Associations) residing in the United States, and all foreign dentists regularly qualified by the laws of the countries from which they come, and such other scientific persons as may be invited by the Committee on Invitations" (Committee No. 11).

It will be seen that the doors are open to every reputable dentist in the United States. All will be welcome except those who are illegal practitioners in States having laws, or who are violators of the Code of Ethics. Should any such join, or attempt to join, and it is known, the name of such applicant will be referred to the Membership Committee. It is advised that no subscription involving any right of membership be received by the State Finance Committees from such as are known to be ineligible to membership.

The General Finance Committee submitted to the Executive Committee the following plan, and it was unanimously voted that such plan should constitute the "rule of action":—

Resolved, that the General Finance Committee be authorised to guarantee to contributors who would be eligible to membership as follows:—

First. That every contributor of ten (10) dollars shall receive the transactions if he does not attend, but will be expected to pay the membership fee of ten (10) dollars in addition, should he attend the Congress.

Second. That every contributor of twenty (20) dollars shall receive the transactions of the Congress if he does not attend, and if he attends and joins the Congress, his receipt for contribution shall be accepted by the Treasurer as full payment of the membership fee of ten (10) dollars.

Third. That every contributor of thirty (30) dollars or upwards shall have all the advantages of the contributor of twenty (20) dollars, and in addition shall receive free the Commemorative Medal which will be struck.

From the foregoing it will be seen that the solicitor for contribu-

tions can assure each contributor of ten dollars or upwards that he will receive a substantial return, whether he attends or not.

To accomplish all this work will demand a large amount of money. The items of stationery, printing and postage will call for considerable ready cash, which must be advanced by those doing the work, in addition to their generous and gratuitous labour, or be furnished by the prompt, liberal and patriotic contributions of the dentists of the whole country. Careful estimates place the amount to be contributed in advance of the Congress at thirty thousand dollars.

It is judged by all who are conversant with the work done up to the present time that this Congress will mark an epoch in dental progress, and be the largest in numbers and most valuable in results of any dental meeting ever held.

The General Executive Committee feels that a great trust has been committed to it, which it will endeavour to manage in a broad and liberal spirit.

The General Finance Committee has perfect confidence that the profession will respond promptly and generously to its call for contributions to ensure the success of the Congress and the honour of American dentistry.

The receipt which the Treasurer, Dr. J. S. Marshall, will mail to each contributor, will have printed on it the conditions before mentioned as part of the contract between the Congress and each contributor.

Devon and Exeter Dental Hospital.

THE twelfth annual meeting of subscribers to the Devon and Exeter Hospital was held at the Guildhall on May 3rd. There were present the Right Worshipful the Mayor, Mr. E. H. Houlditch; Mr. W. Horton Ellis, President; Rev. P. Williams, Dr. Mortimer, Admiral White, C.B.; Messrs. G. Franklin, F. Townsend, Hon. Treasurer; J. T. Browne-Mason, J. M. Acland, R. J. Mills, T. G. T. Garland, H. B. Mason, H. Hems and Roach. The Committee's report stated that the income for the year under review was £153 1s. 3d., as compared with £117 os. 7d. for 1890. The payments for 1891 had been £172 8s., as compared with an expenditure of £124 15s. 2d. the previous year. Included in the £172 8s. were all liabilities incurred up to the end of last year, in which was £27 7s., being balance due for expenses of removal to the present premises, and fitting up of the same. It would be seen that there was a balance due to the Treasurer of £49 6s. The Committee recommended the re-election of the President, Mr. H. Horton Ellis, and the retiring members of the Committee of Management, viz., Mr. G. Franklin, Mr. R. Ley, the Rev. W. G. Mallett, and Mr. F. Townsend as Hon. Treasurer. The Committee expressed their

thankfulness to the staff for continued untiring interest with the patients. The Medical Committee reported that during the past year 3,128 patients were treated, as compared with 3,306 the previous year. The President moved the adoption of the report, and thanked the Mayor for the great interest he took in charitable institutions. Mr. G. Franklin seconded, and Mr. Hems and Mr. Mills, a member of the Hospital Saturday Committee, supported. The Mayor was thanked for his attendance, on the motion of Mr. F. Townsend, seconded by Mr. Franklin. The Medical staff, the president, and the Committee were also thanked, on the motion of the Mayor, for their services during the past year. Dr. Mortimer replied, and said a quantity of new instruments were required at the institution. The expense would not be great, and the instruments were necessary if the staff were to keep pace with the times.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Recurring Dislocation of the Lower Jaw, a Method of Treatment by Operation.*

By F. MARSH, F.R.C.S.

SURGEON TO THE QUEEN'S HOSPITAL, BIRMINGHAM; LECTURER ON SURGICAL DISEASES OF THE MOUTH IN THE DENTAL FACULTY, QUEEN'S COLLEGE.

SIMPLE dislocation of the lower jaw can only take place in one direction—forwards—and may be either unilateral or bilateral. The latter variety is the most common, and is generally caused by muscular action, whereas the former is perhaps more often the result of applied force.

The mechanism of dislocation is essentially the same in either variety. When the mouth is opened the condyle with the inter-articular cartilage moves forwards out of the glenoid cavity and rests against the convex root of the zygoma; if downward force is now applied to the jaw, or if the external pterygoid suddenly contracts, the condyle is carried over the convex root into the zygomatic fossa, and the jaw is drawn forwards and upwards by the masseter, internal pterygoid, and temporal muscles. The capsular and other ligaments are stretched, but are seldom ruptured.

It would seem from the anatomical arrangement of the joint that normally the forward movement of the interarticular fibrocartilage is limited by its attachment to the capsule, and that the condyle is prevented from passing on to the summit of the convex root chiefly by the external lateral ligament. In some cases the force producing the dislocation is undoubtedly sufficient to overcome both these restraining influences, but in others it is probable that the ligaments have been previously weakened by some general debilitating cause—illness,

* Read at a meeting of the Birmingham and Midland Counties Branch.

childbirth, &c.—and that both the cartilage and condyle move more forward than usual, and hence become displaced by comparatively slight muscular or other force. It is noteworthy that most of the cases referred to by various writers have occurred in women.

Dislocation having once occurred, there is a decided tendency to recurrence, owing both to the stretching of the ligaments at the time of the accident, and to the want of precaution to keep the joint at rest for a sufficiently long period after reduction. The time for limiting movements advised in most of the current text-books varies from a few days to a week or two, and is manifestly insufficient for the full repair of the damaged tissues and the contraction of the ligaments.

With each recurrence the liability to dislocation becomes more marked, and the joint may become so insecure as to be a constant source of trouble and annoyance. As a rule, but little pain is caused after the first few displacements, and the amount of inconvenience will depend upon the facility with which reduction can be effected: easy reduction by the patient representing the minimum, difficult reduction by a surgeon the maximum.

Hitherto the treatment of recurring dislocation has been palliative only. An elastic bandage, or some similar support for the chin, is recommended, and the patient is cautioned against opening the mouth too widely. Even if this advice is followed—which it seldom is for any length of time—it is almost certain that in some moment of forgetfulness an incautious movement will reproduce the displacement, and discourage the patient from wearing a restraining apparatus, which is always irksome, and certainly not becoming to either sex. In these cases, therefore, palliative treatment is insufficient and unsatisfactory.

The history of the following case will best explain a method of operation, the aim of which is to check the forward movement of the interarticular cartilage, to prevent the condyle from reaching the summit of the convex root of the zygoma, and at the same time to interfere as little as possible with the normal range of movement of the jaw.

Mrs. A. O., aged 23, a stout, healthy-looking woman, was admitted into Queen's Hospital under my care on May 13th, 1890. Five months previously, and a fortnight after confinement, she bilaterally dislocated her lower jaw when gaping. It was reduced, but in a fortnight's time was again dislocated by gaping. Since then recurrence has been frequent, some days happening many times—in fact, almost always if the mouth is incautiously opened. The dislocation is always easily reduced by her usual medical attendant, but if she is away from home difficulty is sometimes experienced, and the manipulation causes her considerable suffering. Restraining bandages had been worn, but the patient objected to them as a permanence, and was extremely anxious to have something done, and was willing to submit to any operation offering even a chance of relief.

On May 15th, under anæsthesia, the left temporo-maxillary articulation was exposed by an incision about an inch long, extending downwards from the zygoma, half an inch in front of the auricle. The capsule was opened and the interarticular fibrocartilage was found to be exceedingly loosely attached. The external lateral ligament could be clearly defined. Following Professor Annandale's

method of fixing the cartilage in cases of subluxation, a catgut suture was passed through the periosteal attachment of the capsule to the zygoma and through the margin of the cartilage ; but in tying it in the deep and narrow wound it cut through the cartilage ; fine silver wire was substituted, twisted and cut off short. A second suture was now passed through the external lateral ligament and through the periosteal attachment of the capsule as far posteriorly as possible, so as to make a fold or tuck in the ligament, and bind it down to the adjoining structures. The wound was then closed. It was anticipated that these sutures, assisted by the adhesions which would form during the healing process between the exposed part of the capsule and the surrounding tissues, would fulfil the first two aims of the method, and that careful asepsis would ensure the third.

Primary union took place, and in twelve days the patient returned home, wearing an elastic bandage to restrain movement, and for a time being limited to slop diet. She wore the bandage continuously for two months, and during this time there was no recurrence on either side. When she ceased to wear it dislocation of the right condyle soon took place, and became of frequent occurrence ; the left remained in place in spite of the extra strain thrown upon it during the manipulation for reducing the opposite side. The right articulation was therefore operated upon in a somewhat similar manner on September 25th, 1890, but only one silk suture was used ; this was passed through the external lateral ligament, the periosteal attachment of the capsule on the outer side of the glenoid margin, the interarticular fibrocartilage, back through the external lateral ligament, and then tied. Primary union again took place, except along a small drainage tube track, and the patient went home on October 8th, observing the same precautions as on the previous occasion.

Since the second operation there has been no recurrence of dislocation, and no trouble whatever has been experienced from the buried sutures. The cicatrices are hardly visible even on close inspection ; there is a distance of $1\frac{1}{2}$ in. between the front incisor teeth when the mouth is open, and when the jaws are closed the teeth meet accurately. She can open her mouth widely or gape without fear, and can eat anything ; she is, in fact, *re* the dislocation, perfectly well.

The operation, though apparently simple, is not a very easy one to perform. The wound must be limited in length because of the anatomical surroundings ; the tissues cut through are very vascular, and it is difficult both to pass the suture, and to tie it sufficiently tight without cutting through the fibrocartilage. On this latter account aseptic silk or tendon will probably be found the most suitable material for the suture. In view of the possibility of suppurative arthritis and subsequent ankylosis, it is advisable to operate on one side at a time. The second operation should preferably take place soon after the healing of the first wound, and before the elastic bandage is discarded.

A sufficient length of time has now elapsed—over eighteen months since the second operation—to establish beyond doubt the permanent character of the result obtained by this method of treatment, the success of which has in this instance been so complete as to justify its employment in other similar cases.—*British Medical Journal*.

Case of Empyema of the Antrum of Highmore, with Ozæna.

EYE, EAR, AND THROAT INFIRMARY, EDINBURGH.

(Under the care of Dr. HUNTER MACKENZIE.)

C. O'C., aged 23, was remitted on 26th May, 1891, by Dr. Miller, Newhaven. She had been suffering for over a year from an offensive purulent discharge from the right nostril. Dry crusts came in the morning, and recent pus at other times. She had no complaint beyond bad teeth.

On examination of the interior of the nose, accumulations of recent pus were seen lying externally and internally to the middle turbinate area, and a dry purulent crust occupied the adjacent portion of the septum. When the patient was placed on a couch, with the affected nostril and antrum uppermost, and the head bent slightly downwards over the edge, pus dropped freely from the affected nostril. This also took place in the sitting position, with the head bent slightly forwards. There was neither pain, tenderness, nor swelling over the right cheek; but frontal headache, usually confined to the right side, but occasionally extending over the whole forehead, was almost constantly present. Electric illumination showed the right antrum to be slightly less translucent than the left, but control electric observations in other cases without antral affections showed somewhat similar inequalities. An offensive odour was present. On subsequent examinations recent pus was seen in the left nostril, between the middle turbinate area and the outer wall, but it never could be induced to flow freely, as in the case of the other nostril. The upper teeth were much decayed on both sides. There was no difference in the gums of the two sides.

June 22nd. Three stumps of teeth were extracted and the right antrum was perforated by Dr. Mackenzie through the situation of the first molar, its cavity was thoroughly curetted, washed out with a warm alkaline solution, and then with a solution of boric acid. No tube was inserted, but the opening was plugged with carded cotton. Its patency was thus maintained for about ten days, during which irrigation, followed by insufflations of powdered boric acid, were employed. The discharge of recent pus from the nose ceased, and none could be detected on inspection, but the dry offensive crusts already referred to continued to form and be discharged daily. For this condition (ozæna) further and different medication was necessary. A method of treatment instituted by Dr. Mackenzie, namely, persistent irritation of the affected portion of the nasal mucous membrane by repeated applications of blistering fluid, and latterly by the frequent use of "canthos cotton," prepared for him by Messrs. Johnson and Johnson, of New York, was adopted with highly satisfactory results, for without further or other medication, and discarding the uses of sprays, syringes, and douches, the crusts in time ceased to form, and the disagreeable odour disappeared. The chronic condition of ozæna was, in short, superseded by an acute inflammation with a copious watery mucous discharge, which ended in recovery.

REMARKS.—This case is an interesting example of what is rarely met with, the coincidence of empyema of the antrum and ozæna. These diseases, though sometimes confounded, are essentially different in their nature, and also in their symptoms, diagnosis, and treatment.

Empyema of the Antrum.—Here the pus is always fluid, and is discharged through, but not formed in, the nose. Its most usual factor is decayed teeth. The discharge is usually unilateral, though sometimes it escapes from one nostril into the other, as in this case. The amount is usually increased by holding the head in such a position as to facilitate the overflow from the antrum into the nose, as noted in the record of the case, but this cannot by any means always be relied on as a diagnostic sign. The cases being usually of a chronic nature, pain, tenderness, swelling, or redness over the corresponding cheek is never met with, but frontal headache, or uneasiness, generally limited to the affected side, is a very common symptom. Fœtor, varying in intensity, is frequently, but not always, present. Electric illumination and comparison of the two antra cannot be relied on, as in their normal condition these vary greatly in capacity, thickness of walls, and in the number and size of the septa in their anterior. Empyema of the antrum cannot be treated satisfactorily *per nares*. The cavity requires in the first instance to be opened into, and this may be accomplished through the inferior nasal meatus, through the alveolar fossa, or through the alveolus. Where the teeth are affected, which is almost universally the case, it is necessary to extract these, and perforation can at the same time be readily effected through the situation of the first or second molar. A good sized opening should be made. It is of some interest to know that pus may not at once be discharged through the perforation, or until a few hours have elapsed. An important point which greatly hastens recovery is to thoroughly curette or scrape the cavity before the patient has emerged from the anæsthetic. If this be neglected the case may drag on for months, or even years. Patency of the perforation is usually maintained by the insertion of a tube attached to a sound tooth or to a plate; but Dr. Mackenzie has found that if the cavity be thoroughly curetted this is not necessary, and that a plug of carded cotton, as in the case now recorded, amply suffices to keep the opening from closing whilst the requisite cleansing and medication are being carried out. If the pus prove excessive and very fœtid it is probably safer to insert a tube, as in this case healing may be more tardy. But in whatever way the perforation is plugged care should always be taken to do so effectively so as to prevent the passage into the antrum of particles of food or other extraneous substances. A case was some time ago under observation at this institution which obstinately resisted all treatment. Perforation had been performed about a year previously by a dental surgeon in England, who had omitted to give the patient directions in regard to plugging. Of his own accord the patient had fitted into the opening a wooden peg, which, from being made too slender, had slipped into the cavity. This was extracted with beneficial results.

2. *Ozæna.*—Here the pus is formed in the nose, and is discharged, not in a fluid state, but in the form of dry hard crusts, which have the *sui generis* odour so well known as the main characteristic of the disease. Whilst many theories have been advanced during recent years, it cannot be said that we have made any material advance in regard to the etiology of this very intractable and distressing complaint. It is, for example, very difficult to determine why, in such a case as the present, pus from the antrum should be discharged in a fluid state, whilst that from the nose should be retained and form crusts. In regard to treatment, the method of what may be called

simple continuous irritation, as already described, is that which, in the experience of the reporter, has given the best results. As a preliminary to this the cleansing of the nose and the method employed in doing this are of great importance. Sprays and douches are perfectly useless. These simply course over or past the crusts and leave them adherent and almost uninfluenced. Careful mechanical removal, by means of a nasal probe, headed with carded cotton saturated with a warm alkaline solution, is the most efficacious method, and should always be employed.

Ozæna and Disease of the Antrum of Highmore.

TO THE EDITOR OF THE "BRITISH MEDICAL JOURNAL."

SIR,—In the *British Medical Journal* of April 9th the interesting case reported by Dr. Hunter Mackenzie resembles remarkably one of the cases I some time ago published in order to demonstrate the fact that in all cases of ozæna the antrum of Highmore is at the same time implicated, and that consequently the most important point in the treatment of ozæna is the opening and draining of this sinus. In the paper referred to* attention is further drawn to a similar association of antral disease in the majority of cases of inveterate recurring nasal polypi cases.

In all the cases operated on conditions were met with in the antrum (spurs, septa, extensive disease of mucosa) which proved conclusively that in any given case of antrum disease it would be unsafe to rely on any information available from a puncture through the alveolus, that such could only lead to imperfect diagnosis and treatment. The method adopted is to excise a sufficiently large portion of anterior wall of the antrum, and then, with an electric search-light, explore the cavity.

A point noticed in all cases of ozæna is the closure of the ostium maxillare, generally requiring a fortnight's douching of the antrum to secure their patency, after which the cure of the ozæna becomes much more accelerated. Drainage tubes are kept in the sinus for the first fortnight; subsequently lead spigots are used to maintain drainage as long as necessary. Other matters were referred to.—I am, &c.,

Newcastle-on-Tyne.

WM. ROBERTSON.

REVIEWS AND NOTICES OF BOOKS.

NOTES ON DENTAL PRACTICE. BY HENRY C. QUINBY, L.D.S., &c. Second edition. J. & A. CHURCHILL, 1892.

THE first edition of Mr. Quinby's book was reviewed at some length in these columns on its appearance, and we were able to speak of it in terms of praise. We characterised it as a work which deserved the careful study of the advanced student and the junior practitioner. With the exception of an added chapter on

* *Vide Journal of Laryngology, &c.*, February, March, April.

anæsthetics from the pen of Dr. Henry Briggs, in place of the section by the author dealing with this subject in the former edition, the few alterations in the present issue are unimportant. The commendation bestowed upon the first is not less deserved by this second edition. We congratulate Mr. Quinby on the success of his contribution to dental literature—a success manifested by the demand for a new edition within a time which cannot be considered long after the first issue, seeing how relatively limited is the demand for books on such subjects.

OBITUARY.

Mr. Harry West Stoner.

Mr. HARRY WEST STONER, after many months of suffering, passed away at his residence, Western Road, Brighton, on March 22nd, at the age of 70. He was much respected in the town, where for forty-four years he practised his profession. Although he took no prominent part in dental politics, he was always ready, in his genial way, to talk matters over in private. Much sympathy is expressed at his death. He leaves a widow and family to mourn his loss. His three sons are all members of the profession.

MICROSCOPICAL AND LABORATORY GOSSIP.

It is stated that steel can be made almost as hard as diamond by heating it to a white heat and plunging into sealing wax, continuing the operation until the steel cools. It is on this principle that German engravers harden the tools they use in their work.

It is stated in *Discovery* that the power of the microscope can be immensely increased by substituting for the usual eye piece another complete microscope carrying a low power, and as the definition is asserted to remain good, the idea, if there be anything in it, may open up new possibilities of research.

FROM the same source we learn artificial ivory is made by coagulating milk as one would in making cheese, and then mixing with

the solid portion borax, and submitting the mass to high pressure. The material thus formed, which goes by the name of "lactite," is well fitted for the manufacture of such things as pen holders, pipe mouth pieces and combs, being both hard and durable.

WHEN the shape of the cavity is such that a dressing will not hold in, it is a good method to slip a piece of rubber tubing over the tooth, especially when the latter is standing alone.

THE following is recommended by Dr. Beacock in the *Dominion Dental Journal* as a useful metal for casting lower plates, viz., one ounce of bismuth with fifteen ounces of tin. When melted it should be run into ingots for future use.

IT is stated by the *Pharmaceutical Record* that an alloy of ninety-five parts of tin with five of copper will connect glass with metals. To prepare the alloy press the copper into the molten tin, stirring the mass well with a wooden mixer. When cold the mass is remelted. The expansion of this alloy is found to be practically the same as that of glass, and by adding a varying amount of lead or zinc, viz., $\frac{1}{2}$ to 1 per cent., the alloy may be rendered softer or harder as the case may be.

TO MAKE WAX SHEETS.—After having properly cleaned the wax, get four pieces of glass cut the width you wish to have your sheets, and about ten inches long. Any deep vessel, such as a dinner pail, or an old oyster can will serve to melt the wax. Put the pieces of glass in a pail of cold water, and when the wax is melted, take two pieces of the glass, one in each hand, and dip alternately, one cooling while you dip the other; repeat this three or four times and then drop into the cold water, allowing them to remain till you dip the other two in the same manner. If the edges of the glass are now trimmed with a knife the sheets will drop off themselves. Should the wax be kept too hot the sheets will be too thin, and if too cold they will be lumpy and thick; near the setting or cooling point is the proper temperature. A tablespoonful of Venice turpentine to three or four pounds of wax will toughen it.—*Dom. Dent. Jour.*

GUTTA-PERCHA AND TIN COMBINATION.—For cavities where gutta-percha is indicated Dr. J. E. Line advocates the use of this:

combination as a more serviceable filling results. Tin above and below thirty-two gauge is used by placing the tin on the gutta-percha and rolling into a cylindrical form; cylinders are cut the proper height from this, and the rolls placed on end in crown cavities. To finish, a corundum point and water should be used for grinding surfaces, and a sickle scaler, coarsely sharpened on a corundum slab, for proximal.—*Abstract Cosmos.*

SINCE the recent discovery of the germ of malaria, it has been demonstrated that, as was suspected long ago, quinine acts by poisoning this organism. The germ disappears from the blood of malaria patients after the administration of quinine, and it is quickly killed if quinine is permitted to act upon it directly.—*Discovery.*

THE gold medals of the Royal Geographical Society will be presented to Mr. Alfred Russel Wallace and Mr. Edward Whymper at the annual meeting of the Society on May 23rd. The annual dinner of the Society will be held the same evening, and the annual *conversazione* about the middle of June in the South Kensington Museum.—*Discovery.*

ANNOTATIONS.

NOTICE—OLD JOURNALS TO BE SOLD.

The necessity having arisen for disposing of the old numbers of the Journal up to the end of 1889, it has been decided to announce the fact in order that anyone who wishes to complete sets for binding might have an opportunity of doing so. Applications should be made to Messrs. J. Bale & Sons, 87-89, Great Titchfield Street, before the last day of June next.

AT a recent meeting of the Medical Society of London an interesting primary syphilitic sore in a position between the chin and lower lip was shown by Mr. Harrison Cripps. The sore in appearance was quite unlike an ordinary chancre, consisting of a fungating mass resembling an epithelioma, but the enlargement of the glands followed by the usual secondary symptoms soon placed the diagnosis beyond doubt. A curious point in the case is that

the source of infection is said to have arisen from a cut received during shaving.

IN our last issue we referred to the dangers of aluminium, and since then Professor Lange has arrived at some conclusions which seem at variance with the facts there stated. He finds that liquids, like carbolic and tartaric acids, brandy, alcohol, beer, &c., hardly affect the metal during six days' exposure, his experiments being carried out with the same aluminium of which the army implements are made.

A FOREIGN BODY IN THE LEFT LUNG FOR NEARLY TWO MONTHS.—In a recent number of the *Ohio Journal* an interesting case is recorded of a tooth which was lodged in the lung for nearly two months, and then expelled during a violent fit of coughing. The particulars of the case were briefly these. A patient (female) had nitrous oxide administered for the purpose of having some teeth extracted in the upper jaw. During the period of unconsciousness five teeth were able to be extracted, the remaining ones being removed while the patient was held down by force on account of struggling. On returning home the patient was unable to lie upon the left side, and also complained of cardiac pain accompanied by slight dyspnoea. These symptoms continued, and about one week after the operation there was much expectoration, containing both blood and pus. This continued for over two months, during which time the pain in the left lung considerably increased, when the tooth, as before stated, was expelled during a violent fit of coughing, the foreign body being found to be about three-fourths of the crown and one-third of the root of an upper third molar.

One distinct point of interest in the case is that the foreign body passed into the left bronchus, and not the right, which is comparatively rare, as the left bronchus turns off from the trachea at a much greater angle than the right; the opening of the latter lying practically directly beneath the trachea is far more likely to receive any foreign body. The whole case, too, is instructive from a practical point of view, firstly by illustrating the absolute necessity of seeing every tooth removed from the mouth before attempting to extract another; and secondly, the absurdity of operating when a patient is in a semi-conscious state, more especially when force has to be used, for it is more than probable

that it was during this period the foreign body was missed by passing into the trachea.

IN a current number of *Items of Interest* Dr. Peirce mentions a case of a patient who swallowed a large-sized rubber dam clamp, which became impacted in the oesophagus. The patient was then seen by a surgeon, who in unsuccessful attempts to remove the clamp lacerated the walls of the oesophagus somewhat severely. Following this the patient was fed upon mashed, boiled and roasted potatoes for two days, with the result that the clamp passed through the alimentary canal encased in the potato. This is the first case within our knowledge of a rubber dam clamp having been swallowed, and suggests the advisability of more frequently tying a strand of silk to clamps when we use them upon back teeth which are at all conical.

WE have received the following announcement for publication : "The American Dental Society of Europe will hold its eighteenth meeting at Basle, Switzerland, August 1st, 2nd, and 3rd. Members of the profession are cordially invited to attend. Clinics will be a special feature of this meeting. The University will place desirable rooms at the disposal of the Society, and an ingenious amphitheatre for accommodating in the immediate vicinity of the patient a larger number of spectators than are able to witness operations under the ordinary circumstances, will be loaned by the Swiss Dental Association. Programmes may be had on application to the President, Dr. Bryan, of Basle, or to Charles W. Jenkins, Secretary, Zurich."

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Guy's Hospital Dental School.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I was surprised to see in the last number of the BRITISH DENTAL ASSOCIATION JOURNAL an editorial annotation that "Guy's Hospital has decided to raise its fees for dental students from sixty to ninety guineas." This statement is an error, for, as you will observe on reference to an announcement that appears on another page of the May issue of this Journal, no change whatever has been made in

the fees, which were never less than seventy pounds. I should probably have allowed these mistakes to pass without comment had not the paragraph alluded to concluded with remarks upon "an appearance of competition that was to be regretted." No attempt was ever made by Guy's Hospital to compete with the Dental Hospital by constituting our fees less than the combined fee at Leicester Square and "Charing Cross" or "Middlesex." When the Dental School of Guy's Hospital was founded the fee was fixed at seventy pounds, in order to correspond with the combined fee at the Dental Hospital. Soon after the opening of the new School, the Dental Hospital, in conjunction with "Charing Cross" and "Middlesex," announced to us their intention to raise their fees, and asked if we should be disposed to make a corresponding alteration. The response was that as the School had been so short a time in existence, and our announcements had been so recently made, we did not feel justified in making an immediate alteration in the fees. Thereupon the combined fee was raised, but no alteration was made at Guy's Hospital, although we desired as soon as possible to relieve the Dental Hospital from the disadvantage accruing from a step for which we are in no way responsible.

I am, dear sir,

Yours sincerely

F. NEWLAND-PEDLEY, F.R.C.S.

Guy's Hospital, S.E.

May 4th, 1892.

Mr. Dall's Letter on the Erratum.

TO THE EDITOR OF "THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—*Re* Mr. Dall's letter on the *erratum* of March, Mr. Dall begins his letter by doubting the veracity of my correction, and asserts that I altered and amended my statements as an afterthought. Mr. Dall's deductions and conclusions, and display of bad spirit may serve one purpose too obvious to require further attention, but should be eliminated from all scientific discussions. Mr. Dall was not present at the meeting, and has therefore forfeited all right to an opinion as to what was or was not said. If the report had been correct I had no need to alter it, and it matters little to me which way it stands. I did not wish Mr. Dall should bear the impression that I had practically tried the experiment he talks of, and that was my only reason for the letter I sent to the Journal.

Anyone reading the report can easily see that the whole article is jumbled up and contradicts itself; but, fortunately, neither the report nor Mr. Dall's ill-advised letter have much weight in the matter. The members present at the meeting are the best judges of what I said, and I am quite agreeable to leave the matter in their hands.

Mr. Dall seems to forget that at the meeting of which he speaks, viz., the Odonto-Chirurgical Society's Meeting, held 11th November, 1891, I was President and in the chair, and then made the same remark as

I did at the London meeting, distinctly stating that I had never experimented as Mr. Dall had done, but that I spoke of it to members of the profession long before Mr. Dall was ever heard of on the matter. He owned as much in the presence of our esteemed President, Mr. J. Smith Turner, in September last. But not only is Mr. Dall not satisfied with deluding himself with this unscientific method of retaining lowers which could be retained perfectly by the ordinary methods, but he is also endeavouring to mislead others, for in concluding his letter he says his methods can stand on their own merits, and in the hands of careful practitioners can be shown to possess great advantages, which signifies that nothing but success has attended his efforts in the direction referred to. How much benefited we should all feel by Mr. Dall bringing those cases up again for our inspection at the next Annual Meeting ! I should like him even to produce Mr. Gilmour and show us his case again as he showed it at Edinburgh. Of course, this would be rather inconvenient for Mr. Dall, seeing that Mr. Gilmour had endured intense agony till worn out, and Mr. Dall was compelled to remove the pins. Must we, then, infer that Mr. Dall is not a careful practitioner, or that his operation is as unsound and unwarranted as his argument ? Quibbling and deception is not necessary to bolster up truly scientific work. *Egrescit medendo.*

Yours faithfully,

J. A. BIGGS.

[The discussion, which we think might well have terminated with our editorial explanation, having assumed a tone which we regret, we cannot publish any further correspondence upon the subject.—*Ed., J.B.D.A.*]

APPOINTMENT.

A. ALEX. MATTHEWS, L.D.S.Eng., has been appointed Hon. Dental Surgeon to the Bradford Infirmary.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 6.

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VOL. XIII.

Anonymous Criticism.

OUR contemporary, the *Dental Cosmos*, has—or at least considers that it has, which is much the same thing—a grievance against us. For this we are sorry, as we entertain a sincere esteem for the periodical in question. But it is, to our thinking, a very peculiar grievance, and one that deserves a little analysis at our hands, so we will give a brief *résumé* of the *casus belli*.

In January we printed a letter from "A. W.," criticising the scientific value of a paper on "The Dentition of the Felidæ," and the discussion thereon at the last meeting of the American Dental Association. This elicited from another correspondent ("Cis Atlantic"), in our February number, a letter which is elegantly styled by our contemporary "an offensively sarcastic specimen of mud-throwing at the literary and scientific work of American Dental Societies."

The sentence which appears to be the head and front of his offending runs thus: "The game of playing at mock science still goes on merrily at numerous American dental societies," &c., &c. It is not necessary to quote more, as our readers can refer to the letter for themselves. Upon this *The Cosmos* comments: "Until the correspondent quoted develops sufficient courage to abandon his guerilla method of attack, and adopt the name and attitude of a man in his literary warfare, his innominate character is a sufficient protection to him. . . . We have, therefore, to deal, not with him, but with the kind of dental journalism which permits such communications to appear;" and a great deal more to similar effect, in the midst of which occurs an adjuration to consign all such unsigned communications to the waste-paper basket, else we make ourselves responsible to the full for the sentiments of disparagement expressed in them.

There seems here to be a little confusion of ideas. It is to be remarked that, so far as the public is concerned, the bulk of criticism is, and always will be, for excellent and obvious reasons, anonymous; but that, so far as we ourselves are concerned, it is not anonymous, but is authenticated by the names of the writers, and, we may add, that the writers of the letters, were their names to be given, would be found to be amongst those who, by their own work, have earned the right to speak with some authority.

It is hardly possible, in the limits of an editorial comment, to enter into a discussion upon the rights of this individual question, and we do not propose to do so, as that issue is of less importance than the more general one raised as to the proper line to be taken by a journal in these matters. It is alleged that by the publication, in the avowed form of a letter, of an unsigned communication,

we render ourselves responsible for the sentiments therein contained. That is a strange doctrine, and a position which we repudiate utterly. If, in our judgment, a particular communication is mischievous, we refuse to publish it unless the writer has some strong claim to be heard, and then we should publish it under protest of some sort. But are these letters mischievous? We think not; nay, more, though we should not have gone out of our way to express any opinion upon the subject, since the *Cosmos* seeks to fasten upon us the responsibility for the sentiments expressed, we may as well at once openly avow that although we entirely repudiate the responsibility, we do, to some extent, entertain the same views as those held by our correspondents. We think—and in so speaking we are doing no more than repeating what has often been said openly by some of the most distinguished of our American *confrères*—that there is great need for a more rigorous censorship of the papers read and printed at American societies. It is one thing to set oneself to patiently and conscientiously conduct an investigation in a true scientific spirit, and to make observations extending over weeks, months or years, the outcome of which may be a solid contribution to knowledge, expressed though it be in but a few lines or pages; and it is quite another to sit down and write voluminous essays with no basis of personal research. There are many workers of the first class in America to whose work we are, and always have been, most ready to do homage—indeed we need look no further than the pages of the same number of the *Cosmos* to find examples of such—and we are confident that they will be grateful to us for speaking out upon the subject.

And this brings us to another point. We are quite at a loss to understand the ultra-sensitiveness to criticism displayed by our contemporary. Is it for one moment con-

ceivable that the editorial staff of that generally excellently well-conducted journal can look with satisfaction upon all that from various circumstances it has found itself in a measure compelled to print and publish? And, if it does not, should it not be grateful that the test of criticism—it may be, not always just—is applied to what appears? For our own part, we should often be very glad that our hands should be strengthened thus, for it often happens that a journal has a delicate and difficult task to do in weeding the matter sent to it from various sources, and has sometimes to print that which it does not consider to have any solid value.

Once more, let us repeat that our remarks apply purely to the attitude assumed by our contemporary, and that we do not now profess to sit in judgment upon the particular papers and their critics. Every scientific paper challenges criticism. It is the refining fire from which that which is valuable comes out purged from any dross with which it may have been associated, and every true man of science welcomes it and so considers it. Such was the spirit in which Darwin worked, and he often avowed how much he owed even to the most adverse of his critics and reviewers—often anonymous.

We cannot resist giving another extract from the article in the *Cosmos*, by way of showing its general tone. The *Cosmos* thinks that "a true spirit of professional harmony can never be established by the cowardly and unmanly method of anonymous criticism," and goes on to suggest that we should "enhance the value of our publication by exerting a fostering care over all tendencies looking to a harmonisation of international relations in dental professional matters." This last is really a very nice sentiment, even if it is a little involved in expression—but why, oh! why, does our contemporary go on to give, as its first con-

tribution to the cause of amity, the following, and to tell us not to abet "the impotent vituperations of anonymous individuals whose highest motive is a desire to air their mental sores to the disgust of a more enlightened public."

The literary value of picturesque contrast is undeniable, yet this, as a conclusion to the self-same sentence, which inculcates international harmony, is a little startling, and almost oversteps the limitations of legitimate art.

ASSOCIATION INTELLIGENCE.

Annual Meeting of the Association.

THE MUSEUM.

The 9th July will be the last day for receiving specimens from members resident in the United Kingdom. Cases containing specimens should be addressed Geo. G. Campion, the Owens College Medical Department, Coupland Street entrance, Manchester. Printed address cards for fixing to cases may be had on application to the Secretary of the Museum Committee.

Specimens of abnormal teeth will be shown mounted in glass tubes by means of wire fixed to the corks. Tubes of the proper size may be had on application to the Secretary of the Committee.

Specimens which have not the names of their owners firmly attached to them will not be admitted to the Museum. Three kinds of labels—for tubes holding teeth, for models, and for pieces of apparatus—have been prepared and will be forwarded to any member of the Association by the Secretary of the Museum Committee, on receipt of a post-card stating the kinds of label and the number of each required.

All specimens lent for the Museum will be returned to their owners in the week following the meeting, and the packing will be personally superintended by the Secretary and two or three other members of the Museum Committee. A safe method of packing models was described in a letter in the March number of the Journal.

The arrangements for the Museum are now approaching completion. It will be placed in the Chemical Laboratory of the College, where the cases holding models and other specimens can be easily placed in convenient position for examination. About 1,500 labels of

different kinds have already been distributed, and applications for them and for tubes in which to mount specimens of abnormal teeth are being received daily. Racks for holding tubes containing teeth have been made, and also cases for models. All specimens will be placed under glass so as to prevent any possibility of damage from handling them. A room at the College has been cleared out for unpacking specimens, and these will be placed at once in the cases or racks prepared for them, and everything kept under lock and key. The classifying and cataloguing will be done in this room, and the exhibits only transferred to the places prepared for them in the Chemical Laboratory immediately before the meeting. Thus every precaution is being taken to prevent loss or damage of any kind, and members may rely on having their specimens returned during the week after the meeting. The Local Committee has, so far, done its part, and it now only remains for those members of the Association who wish to see the Museum a success to do theirs.

GEO. G. CAMPION.

Hon. Sec. Museum Committee.

Meeting of Representative Board.

A MEETING of the Representative Board was held at 40, Leicester Square, on Saturday, June 11th, at which the following gentlemen were present: F. Canton, Esq. (in the chair); Messrs. G. Brunton (Leeds), G. G. Campion (Manchester), T. E. King (York), I. Renshaw (Rochdale), G. Cunningham, R. P. Lennox, W. A. Rhodes (Cambridge), E. Apperly (Stroud), Caleb Williams (Leamington), W. E. Harding (Shrewsbury), Morgan Hughes (Croydon), J. Dennant, J. H. Redman (Brighton), G. Henry (Hastings), H. B. Mason (Exeter), J. Ackery, W. H. Coffin, W. Hern, D. Hepburn, S. J. Hutchinson, L. Matheson, L. Read, Morton Smale, S. Spokes, J. H. Reinhardt, J. Smith Turner, E. Lloyd Williams, W. H. Woodruff, Treasurer, W. B. Paterson, Hon. Secretary (London).

The minutes of the last meeting were read and signed. Letters were received from Dr. J. Smith, Messrs. B. Macleod, E. L. Dudley, H. Weiss, M. Johnson and J. M. Ackland, expressing their inability to attend.

The chief matter upon the agenda for consideration was a report from the Business Committee, upon Bye-law 18. This report, it was understood, was not a unanimous one upon the part of the Committee. Its propositions were as follows:—

“That Bye-law 15 read as follows”:—

REPRESENTATIVE BOARD.

“The Representative Board shall consist of the President, President-elect, Vice-presidents, the Treasurer and the Hon. Secretary of

the Association, the President and Vice-president of the Board, the President and Hon. Secretary for the time being of each Branch of the Association, and of Members elected by the Branches, and Members elected by the Association."

"(N.B.)—Bye-law 18, as at present known, to be cancelled, and a new Bye-law framed, to be called Bye-law 16. The present Bye-laws 16 and 17 to be in future known as 17 and 18 respectively."

NEW BYE-LAW 16.

"Each Branch shall be entitled to elect two representatives to the Board annually.

"The Association shall elect twelve representatives to the Board annually, each of whom must be nominated by three other Members from personal knowledge, and all to be eligible according to the Bye-laws. Such nominations must be received by the Hon. Secretary not less than thirty days before the Annual General Meeting, and if necessary, the Secretary shall issue a voting paper and the vote shall be taken by ballot, as may be arranged by the Representative Board.

"All representatives shall hold office from the end of the Annual General Meeting next after their election until the end of the following Annual General Meeting of the Association.

"All retiring representatives shall be eligible for re-election."

Mr. CANTON, as President, moved *pro forma* the adoption of the Business Committee's report.

Mr. PATERSON seconded.

A letter from Mr. Macleod was read in which he stated his views and those generally of the Scottish and West of Scotland Branches on the question, which were in harmony with his own, to the effect that direct representation of Branches upon the Board was good, and further, if it were agreed to, such representation should not exceed the representation of the Association as a whole, but bear the proportion of one-third Branch representatives to two-thirds Association representatives, and the time for which such members should be elected should be three years.

Mr. BRUNTON expressed his approval of the Business Committee's resolutions only so far as they related to the election by Branches of candidates in future, instead of merely their nomination as at present. Upon the other matters he refrained from passing an opinion.

Mr. DENNANT desired to utter a warning against altering the bye-laws of the Association in the present state of the Association, open as it still was to men of various and unequal degrees of professional standing in the matter of dental qualifications to practise. He considered the bye-law had worked well in the past and still continued to

do so, and he could not see that there was any analogy between the methods of election held to be proper in the political world and those of a body like the British Dental Association.

Mr. HENRY thought that the powers of initiative of the Central Executive would be diminished by the proposed change, and as the Business Committee was not unanimous in its recommendations, and the bye-law had worked well hitherto, he could not give his support to any proposal for alteration.

Mr. HEPBURN, as a member of the Business Committee, entrusted with the drawing up of the report, heartily disapproved of the whole of its contents. He believed the Association possessed a good bye-law in Bye-law 18, and its proposed amendment was in his opinion to be deplored. The Association as a whole possessed one common interest in all matters affecting it, and it could not be contended that its Branches had any different one.

Mr. HARDING thoroughly agreed with the opinion expressed by Mr. Macleod in his letter just read. He did not think that the Branches suffered any disadvantage under the present bye-law. It was true there was a feeling that if a Branch selected a gentleman to represent it, he ought to be elected; but upon the question of each Branch electing two representatives, or maybe more, he felt it was more than they could expect. He could not agree with Mr. Dennant, however, in the views he had taken of the question.

Mr. CUNNINGHAM considered the matter of the qualifications of members of the Association, alluded to by Mr. Dennant, to be beside the question. With regard to Mr. Macleod's letter, he would put forward in contra-distinction to the views therein expressed, that Branches should be represented to the extent of two-thirds of the Board, and members elected by the whole Association to one-third. And practically that he considered, was what the resolutions of the Business Committee would be found to work out at. It was, he said, the duty of every man who had joined the Association to belong to a Branch. With reference to Bye-law 18, he differed entirely from Mr. Hepburn, who considered it a good bye-law, and he thought it might be inferred from Mr. Hepburn's remarks, that because the bye-law was considered good, that therefore the constitution of the Board was good. Personally he believed the high character of the Board would be the same, whatever the form of election. Upon the method of procedure under Bye-law 18, he held that when a Branch had selected a fit and proper man to represent it, he should not be allowed to run the risk of rejection by a vote of the Association as a whole. And he pointed out that the present system allowed disproportional representation to occur, *e.g.*, in the district where the annual meeting was held it often happens that more men of that district get on the Board than might otherwise be the case if the scheme before the meeting were adopted.

Mr. COFFIN moved, as an amendment, "that each Branch shall be entitled to elect to the Board annually one representative for every completed fifty members of the Branch." The Branch, he observed, would be entitled to retain its additional *ex-officio* representatives in the persons of the President and Hon. Sec. for the time being.

The Branch representative elected would probably be a gentleman both able and willing to attend to his duties, when possibly from private reasons the other two gentlemen referred to might not be able always to attend their meetings. The amendment appeared to him to minimise the objections to the Business Committee's report, and he therefore begged to move it.

The amendment was seconded.

In answer to Mr. Campion, Mr. COFFIN said that he moved his amendment without prejudice to the matters other than Branch representation contained in the report.

Mr. MATHESON wished to know whether the Board was to discuss the principles involved in the report, or the propositions of the report.

The PRESIDENT replied: Both, and in answer to a further point raised by Mr. Matheson, stated that as the proposed new bye-law to replace Bye-law 18 was closely dependent upon the proposed new Bye-law 15, it was inadvisable to separate them in discussion.

Mr. HUTCHINSON was of opinion that if the right of the Branches to elect their Presidents and Hon. Secs. was conceded, the right of electing their other representatives should be also. He could not agree to accept the amendment, because he believed it was advantageous for a Branch to be represented by two members, against the possibility of one or other being unable to attend. He was in favour of proportional representation, however, but would not like to tie himself down to any fixed numerical representation. He mentioned as a compromise, that when a Branch contained fifty or any less number of members it should be entitled to one representative, and that the larger Branches should each be entitled to two representatives.

After further discussion, Mr. COFFIN obtained permission to move "That proposed new Bye-law 15 as it stood upon the agenda sheet be agreed to."

Mr. HARDING seconded.

Mr. DENNANT desired the members to unite in asking the President of the Association to favour them with his views, and in response to the generally expressed wish, Mr. Smith Turner thereupon addressed the meeting.

Mr. SMITH TURNER said he rose with diffidence to speak on the question. He considered that the difficulties presented to them were appalling. He had taken no part in their previous discussions, and he had no sympathy with the movement. Some people had been inclined to regard him in former times as a fighting man, but he

wished it to be remembered that if he had fought it was not with his colleagues and brethren in the profession, but rather with persons outside it. He would, with the meeting's permission, speak upon the original principle of Bye-law 18—the principle about to be destroyed by the proposed alteration, and not on the resolutions of the Business Committee in detail, as he felt himself compelled to oppose them. In the first place, he was surprised at the absence of good and sufficient reasons for the proposed alterations. Amongst some it had been said that there was a feeling in the Branches that they should be directly represented, but he did not think that a feeling was equivalent to a reason. Personally, he would much prefer to see representatives elected by the whole Association, which would ensure that men would be known all over the country, and would be truly representative and not mere delegates of Branches. And the old methods of election were more likely to secure this condition than the proposed new ones, which would result in men being sent as delegates, who, when their message was delivered, and in the event of refusal, would not be in a position to move further in the matter without additional instructions from their constituency. What the Association required was that the Board should consist of men capable of thinking and acting as representative men and not as mere delegates.

He believed that laws were neither so good nor so bad as generally supposed, but that a good deal depended upon their administration, and the simpler the law the easier it was administered and the less likelihood there was of friction to arise; but if a law was complex, with checks and counter checks, as in all cases of fancy franchise, it opened up a continuous source of contention, misapprehension and dissatisfaction, and afforded frequent opportunities to those who were ready to criticise, find fault with, and embarrass the executive. He believed the present principle of universal suffrage to be a good one, and he called upon those who disapproved to state their objections. The Association was established on the principle of universal suffrage. There was no room for political parties. This universal selection and election was assailed by the proposed alterations. He proceeded then to examine the difficulties that might arise in connection with the proposed alterations.

Some branches he said might have twenty-seven or 140 members, for example, and if the principle of election by Branches were admitted, then the number to be elected by each Branch must be apportioned, and so numerical representation becomes at once a fact; and it is not to be supposed that a Branch with 140 members will be content to have only the same number of representatives as a much smaller Branch, therefore you are brought face to face with proportional representation, and here you have the difficulty arising of a Branch with its numbers, from accident, death or otherwise, falling below the total required, disfranchised to the extent of a representa-

tive, perhaps a most desirable man. If you apportion a definite number to each Branch, *e.g.*, two members, you offer an inducement for the splitting of Branches (for the minimum is only twenty members for the formation of a Branch) into smaller Branches, and so you open up a field for the election of a Board which would be too numerous. Then, also, members belong often to two or three Branches. Are you, therefore, to have plurality of votes?

The next point that arises is the interference with the independence of Branches, a matter upon which he had always been most jealous. If the Branches are to adopt their own methods of election, you will have a diversity of procedure which will be confusing, and may lead to recriminations between Branches. If on the other hand, you impose a uniform method upon the Branches, who is to supervise it? For it is not to be supposed that Branches would care for their proceedings to be examined by the executive of the Association.

Another point was that in the event of the appointment of elective power to numbers only, in an Association of men of different degrees of education, some with qualifications, some without, and some with additional qualifications, difficulties would occur. He would have the Board remember that there were other conditions beside numbers, and also that men having qualifications might consider themselves entitled to additional privileges. Hitherto the Association had been content with equality in election under cover of universal suffrage, but he thought that differentiation might lead to disintegration.

As to the representatives who are to be elected according to the scheme before the meeting at the Annual General Meeting, it follows that non-members of Branches must come to the meeting in order that they may vote, unless voting by proxy be adopted, but even then, members of Branches will vote along with non-members of Branches, so that those who do not belong to Branches will be virtually disfranchised to the number of representatives elected by the Branches to the Board. It is not sufficient to say that men should belong to Branches. Many cannot, others do not wish, and on that account they should not be coerced by being deprived of a right which they acquired when they became members of the Association. There is no law compelling them to belong to the Association, and they may prefer the alternative of leaving it altogether if they are deprived of what they have considered a legitimate right.

It was true that the old method of election had worked a little clumsily, and their thanks were due to Mr. Cunningham at the Exeter meeting, for helping them out of an accumulated difficulty. In future, possibly, a postal ballot might obviate it.

He considered that a fancy franchise with its attempts to balance power by its checks and counterchecks was impracticable, and if he desired to see the British Dental Association reduced to impotence, he could not wish a better beginning of the process than by the adoption of this scheme of representation of Branches.

Mr. CAMPION in the course of his remarks stated that members of Branches were already represented on the Board, and that he failed to see how by making actual what was now in effect virtual, viz., the nomination of Branches being looked upon as elections and usually treated as such, except perhaps upon the last occasion, the Association would suffer.

Mr. DENNANT desired to point out that the difference between the system under the old bye-law and that of the new scheme, or its latest amended form might be summed up in one word "flexibility."

Mr. MATHESON observed that the Board had now for the first time heard the objections and dangers urged by Mr. Turner against the adoption of the report before them, and that it might be better to defer voting upon the report until they could be more fully considered.

Mr. KING considered the objections urged by Mr. Turner had already been discussed at the various meetings of the Business Committee. He looked upon the old Bye-law 18 as complex, and would support the proposals which gave the Branches the right to elect their representatives.

Mr. COFFIN felt that he had elicited a powerful and logical speech from Mr. Turner. He, himself, was in favour of universal suffrage, and in moving as he had done he had acted with a desire to bring the whole question before the Annual General Meeting. He would with their leave withdraw his amendment in reference to the numbers of Branch representatives.

The amendment was by leave withdrawn.

Mr. SMALE then moved the previous question as an amendment to the whole body of the resolutions before the meeting.

Mr. DENNANT seconded.

Mr. LLOYD-WILLIAMS desired to take a ruling from the chair. It appeared to him that several members were not present at the last meeting, and it might be advisable to take a vote on the question itself.

THE PRESIDENT stated that the latest amendment before the meeting was the previous question, and it was upon that he should ask the members to vote.

Mr. MATHESON in view of what had transpired would support the amendment of Mr. Smale. Upon a vote the amendment of the previous question was declared to be carried by 17 to 9.

Mr. COFFIN gave notice to rescind the nomination of candidates by Branches wherever the same appears in the bye-laws.

The following rules relating to the conduct of business at the Annual Meeting were agreed to upon the motion of Mr. Matheson, seconded by Mr. Redman :—

(1.) That the business of the Annual Meeting shall commence by the retirement of the President and the induction of his successor, and that this should be the custom at and after the Annual General Meeting in 1893.

(2.) That the Annual General Meeting be concluded by a formal business meeting for the passing of votes of thanks and the confirmation of the minutes.

The Hon. Secretary read a letter from the Registrar of the General Medical Council, announcing that the petition of the British Dental Association relating to the practice of "covering" in the dental profession had been before the Council and would be considered in consultation with their legal advisers at their next meeting this year.

The Treasurer reported a balance of £385 3s. 5d. ; 19 members in arrears for two years.

Mr. RENSHAW, as Hon. Secretary of the Midland Branch, stated that the arrangements for the social programme of the forthcoming Annual Meeting were as follows :—

On Wednesday evening, August 10th, a Reception would be held by the Mayor of Manchester in the Town Hall.

On Thursday evening, August 11th, a *Conversazione* would be given by the members of the Midland Branch and Manchester Odontological Society at Owens College.

On Friday evening, August 12th, the Annual Dinner would be held, and special entertainment for ladies would be provided.

On Saturday, August 15th, an excursion by special saloon train to Buxton would be provided by the Midland Branch, and Mr. Quinby, the President-elect, would entertain the company at a garden party.

Mr. CAMPION, as Hon. Sec. of the Annual Meeting Museum Committee, asked for a pecuniary grant in aid.

Upon the motion of Mr. SMALE, seconded by Mr. HERN, a sum for the present, not to exceed £50, was voted.

The deaths of Alexander Fothergill, of Darlington, and Felix Weiss, of London, were announced, and the Hon. Sec. was desired to convey the condolences of the representatives present to the members of the bereaved families.

Other business was transacted, and the proceedings terminated.

Papers for the Annual Meeting.

THE Honorary Secretary will be glad to receive the names of gentlemen who are desirous of reading papers at the Annual General Meeting of the British Dental Association in August next. Communications should be addressed to him at 40, Leicester Square, W.C.

Annual Meeting of the Midland Counties Branch.

THE Annual Meeting of the Midland Counties Branch of the British Dental Association was held at Huddersfield on May 20th.

On the previous evening, through the kindness of Mr. J. W. Senior and the local committee, a reception had been arranged, and it was given in the Reception Room by the Mayor of Huddersfield (Alderman R. Hirst) and his daughter, Miss Hirst. Music was furnished by Mr. Joshua Marshall's orchestral band; by Mr. Cumberbirch, concertina and mandolin soloist; and by Miss Florrie Marshall, Miss H. Sykes and Mr. Edward Haley. The musical contributions were all of high class, and the evening was very agreeably spent. Refreshments were served by Messrs. Johnson Bros., New Street. The only thing which occurred to mar the pleasure of the evening was that members of the Council of the Association had to leave early in order to attend a meeting of the Council.

Next day, Friday, was the principal day, embracing as it did the demonstrations, the business meeting, the reading of papers, and the annual dinner.

The demonstrations comprised the following:—"Fusible Metal Alloys," by R. P. Lennox (Cambridge); "Continuous Gum Work," by Harry Rose, L.D.S. (London); and "Electricity for Dental Purposes," by W. Broughton (Eccles). Great interest was manifested in these demonstrations by the members of the Branch. Dental appliances were also exhibited in the lower rooms of the Victoria Hall, where the annual meeting was held.

The Business Meeting, for members only, was held at noon, under the presidency of Mr. A. Fothergill (Darlington), the out-going President. The following is a list of the members in attendance and the places they represented:—

Alex. Fothergill, President (since deceased) (Darlington); W. E. Harding, President-elect (Shrewsbury); Messrs. W. Taylor (Batley); W. J. Pidgeon (Bootle); W. Dykes (Bowdon); J. H. Bottomley, F. E. Garner, A. Howarth, G. H. Jones, E. J. Ladmore, A. A. Matthews, T. T. Parkinson (Bradford); J. E. Sutton (Buxton); R. P. Lennox (Cambridge); A. Maurice (Chester); J. A. Fothergill (Darlington); T. W. F. Rowney (Derby); W. E. Margetson, C. Rippon (Dewsbury); W. Broughton (Eccles); Arthur Cocker, A. B. Wolfenden (Halifax); E. A. Bradbury, J. W. Senior (Huddersfield); T. M. Howkins, J. C. Storey (Hull); G. Brunton, J. C. Birch, J. G. Greaves, J. B. Hordern, R. L. Young (Leeds); L. Matheson, H. Rose (London); R. M. Capon, R. Edwards, W. H. Waite (Liverpool); G. G. Campion, W. Dougan, D. Headridge, W. A. Hooton, E. Houghton, F. Masters, W. Simms, G. O. Whittaker (Manchester); G. Broughton (Patricroft); Norman Washbourn (Ripon); I. Renshaw (Rochdale); G. H. Lodge (Rotherham); J. H. Jones (Sale); F. Harrison, J. Harrison, J. L. Pike, C.

Stokes, S. Whiteley (Sheffield) ; S. Wormald (Stockport) ; Alfred Cocker (Sowerby Bridge) ; W. Glaisby, T. E. King, G. H. Osborn, A. G. Rayner (York).

Mr. I. RENSHAW (Rochdale), the secretary of the branch, at a call from the chair, read the report, as follows :—

HON. SECRETARY'S REPORT FOR THE YEAR 1891-2.

GENTLEMEN,—In presenting this the twelfth annual report of the operations of the Midland Branch of the British Dental Association, we have again to congratulate ourselves on the fact that the Branch maintains its reputation for vitality and growth.

The Council have met three times, and there have been three "informal" meetings of the members during the year ; the latter have become exceedingly popular, and the interest in them has been well maintained, about seventy members being present on each occasion.

The first was held in Liverpool, in the month of October of last year, when Mr. A. A. Matthews (Bradford) read a paper on "Some Notes on the Aims and Operations of the British Dental Association." The second was held in Bradford, in the month of February of the present year, at which Mr. A. B. Wolfenden (Halifax) read a paper on "Dental Ethics." Both papers evoked discussion of a healthy and comprehensive character.

One feature of these gatherings was that the members residing in the respective towns where the meetings were held, entertained the members to tea, during which the box of the Benevolent Fund was passed round. The sum contributed in this way during the year to that deserving fund amounts to £14 17s. 4d.

At the Annual Meeting held at Darlington in May last it was decided to invite the Association to hold its Annual Meeting in Manchester in August of this year, under the auspices of the Midland Branch ; the invitation was cordially accepted, and arrangements are now being made to ensure the success of the Meeting.

For some time past your Council has had the opinion that the principle of electing branch representatives to the Representative Board was scarcely suited to the altered condition of the Association, with its multiplicity of branches, advocating and holding to the principle of direct election of representatives of branches by the branches, instead of simply nominating them as heretofore, and it is satisfactory to know that the Representative Board, at its last meeting, adopted the principle, and authorised the Business Committee to frame a bye-law in order to make it effective.

The numerical condition of the branch is as follows :—At the last Annual Meeting there were 149 members' names on the books ; six were struck off at the commencement of the present year in consequence of being two years in arrear with their subscriptions to the

Association, one has died, namely, Mr. T. Kelly, the oldest dental practitioner in Manchester, and a member of the Midland Branch since its foundation, bringing the number down to 142 ; but during the year sixteen members have been elected, which, with nine elected at the Council Meeting last night, brings the total up to 167. We regret to state that of this number six are in arrear with their subscriptions for one year, eight for two years, and one for three, and that in accordance with the bye-laws they will cease to enjoy the privileges of membership unless the arrears are paid.

Last year there were six associates of the Branch ; two have become members, two have removed, leaving no address, and have not paid any subscriptions for some time, so that only two associates remain.

Your Council recommend you to elect as president for 1893-4, Colonel Richard Rogers, of Cheltenham, one of the originators of the Branch, and suggest Southport as the place of the next Annual Meeting.

The report was adopted on the motion of Mr. C. STOKES ; seconded by Mr. W. E. HARDING.

Mr. S. WORMALD of Stockport presented the balance sheet. He said he had been treasurer for twelve years, and he did not know that he had ever had greater pleasure in his office than now, because the Branch had from the very first year grown in numbers and in unity and social brotherhood, and the funds likewise were in better condition. The expenses amounted to £17 18s. The balance from last year was £27 16s. 3d., and the total amount of receipts was £61 1s. 3d., so that the balance in hand now was £43 3s. 3d.

On the motion of Mr. HARRISON, seconded by Mr. STOREY, the treasurer's statement was adopted.

The CHAIRMAN said the next business was the election of the President for 1893-4, and the Council recommended the election of Col. R. Rogers, of Cheltenham, to be the President for 1893, and that Southport should be the place of meeting in the year.

The recommendation was confirmed on the motion of Mr. WAITE, seconded by another member.

Mr. RENSHAW, the secretary, and Mr. WORMALD, the treasurer, were re-elected to those positions unanimously and with enthusiasm.

Mr. WAITE moved a vote of thanks to the two gentlemen just named.

The CHAIRMAN said he was sure the members were exceedingly indebted to the officers for the way in which they had attended to their duties.

The resolution was seconded and passed.

Mr. RENSHAW acknowledged the vote.

Mr. WORMALD did so also, and took the opportunity of asking the members to aid him in the performance of his duties.

Mr. RENSHAW said the Council at their meeting on the previous

evening recommended Mr. T. E. King, of York, to represent the Midland Branch on the Representative Board.

This was moved by Mr. BRUNTON, and seconded by Mr. GLAISBY, and was passed.

The PRESIDENT said the next business was the election of the Council. There were three retiring and three to be elected. Messrs. Lennox and Matheson were appointed scrutineers.

The ballot having been taken, Messrs. G. Brunton (Leeds), W. Glaisby (York), and E. J. Ladmore (Bradford), were declared elected to fill three vacancies.

The PRESIDENT then delivered his valedictory address as follows:—

VALEDICTORY ADDRESS.

GENTLEMEN,—A year has passed since I had the honour of addressing the members of the Midland Branch of the British Dental Association, when entering upon the office to which their kind confidence had elected me. I have now only a few words to say in vacating the presidential chair in favour of my successor.

I fear my year of office has not been marked by any very special features of progress. My own health has prevented me taking so active a part in some directions as I could have wished, and as might perhaps have been expected from me, but I have to acknowledge the kind forbearance with which my deficiencies have been overlooked.

The proposal to form a Northern Counties Branch which was alluded to last year is still, I fear, *in nubibus*, and the attendance at the Annual Meeting by members north of Darlington was not encouraging for the prospect of future united action. At the informal meetings which were held at Liverpool and Bradford, the kind reception given to the members attending, the papers introduced and the discussions which followed, manifested a lively interest in the progress of our profession and in all that concerns its welfare which was very encouraging. The time which is given up by so many members from very busy lives, the distances travelled, and the expense incurred in attending our meetings is sufficient proof of this. It is not done for the sake of a selfish advantage, but on behalf of, and for the sake of, the whole body. At the same time we are constantly hearing testimony to the advantages gained by the individual from mingling with his fellows, and hearing from one and another the special way in which they have overcome difficulties which all must meet with. I am inclined to think—though it may be from partial knowledge—that no profession loves its work more or takes more interest in all its concerns than ourselves; and if, as it is said, “diligent” means “delight in,” we have, I think, one secret of our success, for the truest industry springs from pleasure taken in the work. The pursuit which is really enjoyed will generally be followed

with diligence; but there is a converse to this and we shall generally find that the work which from a sense of duty or from necessity is followed with diligence, will sooner or later come to be also enjoyed.

It is said that a certain popular preacher being asked how long it had taken him to prepare a striking and impressive sermon which he had recently delivered, replied, "Forty years;" not that he meant by this that he had been occupied forty years in the production of that particular sermon, but that the thoughts, the observations, the influences of forty years, all had their share in its composition. And so, I have thought, it often is with our work. Almost unconsciously it may be we embody in our work the definite instruction given to the student, the hint thrown out in conversation at one of our dental meetings, the observations we have made ourselves in similar cases, and the results of many failures, all blended together and brought to bear upon the case before us. We may say we have spent one, two, or three hours upon the case, but this does not represent the whole truth, there is really the result of the work of a lifetime embodied in it.

The influence of the reforms which have been going on for the last fifty years have many aspects, and must be considered not only as they affect our own members, but also as they affect those who profess to practise our art but are not our members, and also as they affect the general public. As they affect ourselves I think we may look with satisfaction upon the addition year after year of those who have had the advantages of a practical and scientific training in all that pertains to the profession, and who, having passed through the various stages and obtained an honourable and legal position as dental practitioners, may be expected to be loyal to what that position implies. To these the benefits derivable from the Dentists Act primarily belong. But we know there are those whose constant endeavour is to evade the Act, and the public at large are not yet sufficiently informed on the subject to avoid giving them countenance and support. "It is our duty," said Mr. Waite in his address at Darlington last year, "to throw light upon general ignorance, and endeavour to elevate the standard of opinion as to the merit and status of the dental profession." "It was the business of the public to understand that an unregistered practitioner was in an illegal position." "When a man," he continued, "concealed his name, or omitted to declare himself as a dentist . . . in any circular or advertisement in which he might solicit public patronage, they might be tolerably sure that he was not a registered practitioner." In connection with this remark, I think we may notice the large increase of so-called dental companies which now appear amongst the advertising dentists' notices. If anything has been gained for the public by the restraint imposed by the Act upon the irregular and improper pretensions of uneducated and incompetent persons, is there not a danger of its being lost if any one, by suppressing his name and advertising himself as a Dental Com-

pany, can evade the provisions of the Act and avoid the penalties which would otherwise be incurred.

The discussions which have taken place at the meetings of this and other branches show that much thought is being bestowed upon the unqualified practitioner, and I can hardly suppose but that some practical and well-considered action will result from the attention which is given to the subject.

While there is much cause for encouragement in some directions, I fear there is still much work to be done before we can be too congratulatory upon the position of our profession as a whole. I alluded last year to the Act then passed by the Australian Legislature, and the provisions made for the training of dental students, and we have now reports of examinations having actually taken place. We are also informed of the enactment of the Medical and Pharmacy Act of the Cape of Good Hope, which also includes dentists, and from which we may hope for good results.

Since my election as President of the Midland Branch I have retired from practice, so that I regard this not merely as an official farewell, but as a farewell to the profession in the pursuit of which so many years of my life have been actively engaged. I have the greatest pleasure in recognising in my successor one for whose worth, ability and acquirements I am sure we must all feel the greatest respect and esteem. I have noticed his career since first making his acquaintance when he was a student in London, and I think from his future we have still much to hope. I heartily wish him every success.

Mr. RENSCHAW proposed a vote of thanks to the outgoing President for the able way in which he had performed his duties as President of the Branch during the past year. He had been very attentive to the onerous duties devolving upon him, and he had come long distances at very inclement seasons of the year to attend the meetings, and he had taken a lively interest in all that the Society had done during the period of his office. The least the members could do was to accord to him their grateful thanks for the way in which he had performed his duties.

Mr. WAITE seconded the proposal. Those, he said, who were at Darlington last year, would remember the cordial manner in which the Association was received there, and the handsome entertainment provided for them, and they had all experienced the wisdom, care and thought with which Mr. Fothergill had discharged his duties.

The resolution was passed.

The PRESIDENT said he was very much obliged for the kind way in which they had received his efforts. He felt very diffident in accepting office, and he knew that his duties had only been imperfectly performed. At the same time he thanked them very kindly for the way in which they had received him.

The meeting then closed.

An adjournment was then made for luncheon at the George Hotel, on the invitation of Mr. W. E. Harding, L.D.S., the President-elect.

At half-past two the General Meeting was held, open to ladies and visitors, as well as the members. There was a good attendance.

The PRESIDENT took the chair, and delivered the following address :—

PRESIDENT'S INAUGURAL ADDRESS.

GENTLEMEN,—In the first place I must express my thanks for the honour you have conferred on me by placing me in the chair of the Midland Branch of the British Dental Association—a Branch which, though one of the oldest and also the largest, shows none of the decrepitude of age, but is full of youthful vigour. It was with great hesitancy that I consented to accept the position that has been filled by many abler men than myself.

Not the least of the difficulties which meet me at the outset is the necessity of preparing a presidential address. So many presidential addresses are delivered each year, that the difficulty of saying something fresh is greatly increased. I hope, therefore, that you will overlook my many shortcomings.

Our retiring President, in his address last year, was able to carry us back in thought for upwards of half a century—to the days before George Stephenson's locomotive revolutionised the world. As it is only five-and-twenty years since I commenced my dental studies, I am not able to carry my memory to so remote a period; but as that five-and-twenty years is further back than many of our younger members can go, I thought a few remarks on the advances we have made during that period would not prove uninteresting.

Few professions have advanced so rapidly as dental surgery, and that advance has been steady progress all along the line—in pathology, surgery, mechanics and latterly in bacteriology. The many earnest workers, whose names are so well known to us all, have helped to raise the profession from a state of chaos, if not to Cosmos, at any rate to that of an organized and scientific branch of the healing art.

At the time I began my training in the workroom, vulcanite had only lately been introduced and displaced bone work—indeed we still continued to fit down bone blocks and occasionally natural fronts. Most of the older practitioners will, I am sure, agree with me that the introduction of vulcanite has not been an unmixed good. I think it has lowered the standard of mechanical work all round, and the training of the hand and eye acquired by bone work has no counterpart in vulcanite manipulation. Yet how valuable this hand training was, both to the mechanic and operator, only those who have experienced it can thoroughly appreciate. The ease with which the mounting of artificial teeth in vulcanite can be learnt, together with painless extraction under nitrous oxide, has resulted in the wholesale

destruction of teeth by unscrupulous and ignorant men. The only remedy for this is to educate the public as to the value of their natural teeth, and the advantages of conservative dentistry.

We have had many valuable improvements in impression compounds, but for edentulous or nearly edentulous cases nothing can equal plaster of paris; the small amount of adjustment required when fitting the cases in the mouth is as great a relief to the dentist as the comfortable fit produced is to the patient. I cannot too strongly urge those who do not use it to make a trial of it; they will find it of especial value in edentulous lowers, where folds of the mucous membrane are apt to be displaced by "stent" or "godiva."

The artistic arrangement of artificial teeth is worthy of much more study and care than it generally receives. I know too often our patients express a wish to have "a nice, white, even set," and it is with some difficulty we can persuade them to let us arrange the substitutes in a natural manner.

Continuous gum work lends itself admirably to prosthetic dentistry, but its weight and the difficulty of repairing it in case of an accident are drawbacks. Glass of a low fusing point is being tried, but has not yet got beyond the experimental stage, and it is doubtful if it will stand the solvent action of the mucous secretions.

Turning to the operative department, the revolution is still greater. Well do I remember the tedious work of opening up cavities in dense teeth with chisels and hand burs. How this has been altered by that, to us, indispensable instrument, the burring engine and its numerous accessories! It has reduced the labour of excavating cavities—especially when run by the electric motor—at least 50 per cent., and will, I am sure, add years on to the life's work of many of us. I remember an old friend of mine remarking that "a dentist should have three hands and no back." With a Wilkerson chair, an electric motor, and a Lyon's stool, he would no doubt still find a third hand useful, but the liability to back-ache is greatly reduced.

Another great boon is the rubber dam, which enables us to accomplish much conservative work which would be impossible without it, and we should not forget the true professional spirit in which Dr. Barnum refused to patent his invention, but freely gave it to the profession.

We have had numerous improved filling materials introduced, but some of our old friends, such as copper amalgam and Jacob's gutta-percha, still hold their own, when used in their right position. The search for a really permanent white enamel filling is, so far, no more successful than that for the philosopher's stone. We constantly get a new one introduced with a loud flourish of trumpets, but, alas, time, which proves all things, has, so far, proved that none of them will last when near the gum.

Porcelain inlays are a very valuable and artistic method of treating

large labial cavities in front teeth, and when the cavity has a regular outline they are very permanent. Inlays made of glass, which fuses at a low temperature, have the great advantage of easy adaptation to the shape of the cavity, the great objection being that the surface must not be ground to make it flush with the edge of the cavity. Whether glass of a low fusing point will stand in the mouth for a lengthened period is doubtful.

We have seen a great development in crowns and various kinds of bridge work. Improved and more scientific methods of dealing with septic roots have enabled us to save and crown many roots which, but a few years ago, would have been unhesitatingly extracted. Our advances in root and pulp treatment have, I think, been greater than in any other department.

Many earnest workers—notably, Dr. Miller, of Berlin—have followed up Lister's great discoveries in antiseptic surgery, adapting those great principles to our own department, so that we can now generally treat and fill a septic root at one or two sittings, when twenty years ago we should have continued dressing it perhaps for several weeks.

Turning from the practical to the theoretical: in my student days we had three theories of the cause of caries, each having their supporters, viz., the chemical, the vital and the electric. The researches of Underwood, Chas. Tomes, Sewell and Mummery have set the controversy at rest. It is shown that the chemical theory was not very far wrong, but it failed to recognise the part played by micro-organisms in the production of the solvent acid.

There are many problems still waiting solution. Amongst them none seems of greater importance than the cause of the deterioration of tooth structure, which has been gradually increasing for several generations, and has become so universal amongst the children of the present day that it often taxes all our care, skill and patience to cope with it. In his address last August, Mr. Smith Turner suggested a cause of this deterioration, viz., the competition between the developing teeth and the brain for a supply of phosphates. This idea is quite new to me, and is, I think, well worthy of careful investigation.

The present year will be an important one for the Midland Branch, owing to the visit of the parent Association to Manchester in August next, and I feel sure I am but echoing the wish of each member of the Branch in hoping that the meeting may be a great success, and I am sure no efforts will be wanting on the part of the Committee to bring it to a successful issue.

Gentlemen, I fear I have wearied you with these rather tedious remarks, and will conclude by expressing a hope that during the coming year each will endeavour to make our meetings instructive by contributing anything interesting that may come under his notice.

The PRESIDENT announced that through the intervention of Mr. Bradbury, the Conservative Club had been very generously placed at

the service of the members of the Dental Association during their stay.

Mr. BRUNTON said he would like to offer his sincere and cordial thanks to the President for his admirable address, and he proposed a vote of thanks to him.

This was seconded by Mr. FOTHERGILL (the ex-President) and passed, and the compliment was briefly acknowledged.

Mr. GEO. BRUNTON then read a communication : "Notes on Cases of Absorbed and Perforated roots treated by Sponge-Grafting," which appears amongst our Original Articles. Mr. Brunton illustrated his observations by a diagram drawn in chalk on a blackboard.

The PRESIDENT remarked that they all knew how difficult it was to treat these cases of enlargement of any root, whether from absorption or from the tooth not being properly developed, and he did not know anything which was more troublesome in root filling than in treating something that was absorbed, or where the development was not complete.

Mr. S. WORMALD read a paper on "Observations on Dentistry," which we hope to print in our July issue.

The PRESIDENT said he had been greatly interested in listening to the paper by Mr. Wormald, who had seen the practice of dentistry during many years, and whose remarks always carried great wisdom. He did not, however, think that it would need much discussion ; at the same time he should be glad to hear any remarks on the subject from any gentleman present.

Dr. E. F. SCUGAL was then called upon to read a paper on "Cocaine," but instead he gave an oral address. Owing to want of time he had been unable to prepare anything, and so had fallen back upon matter written three years ago. As he dared say they knew, cocaine was extracted from a well-known plant—erythroxylon coca. It grew chiefly and originally on the eastern slopes of the Andes in South America, Bolivia and Peru. It had been cultivated by many other countries, amongst others India, but South America was its original habitat. It first became known in this country so far back as almost three centuries ago. In the year 1596 the first record of it in English literature was to be found, and that was in a translation of an ancient work by a Spanish doctor, giving a very glowing description of the properties possessed by the plant called coca, and sometimes cuca. Incidentally he would like to say he had not found any good reason for the spelling *cuca*. The old Indian word was *khoka*, and he should stick to coca. From the accounts given by travellers, there was not the least doubt that coca possesses very extraordinary powers. The book by the Spanish doctor before referred to gave a curious and interesting account of it, and there was a very good account given of it in Johnson's "Chemistry of Common Life." All authorities and travellers agreed that its chief characteristic was that of preventing a

sense of fatigue. In other words, they could do their daily work with a handful of coca leaves, and they would find that at the end of the day, instead of being worn out and weary, as they might expect to be, they would be tolerably fresh. There was a name probably known to most of them, Sir Robert Christison, who was one of the earliest to experiment with coca, and his experience—which he had heard him detail, because he had the good fortune to be a member of his class at Edinburgh University—was to the effect that with a small supply of these coca leaves he could manage—and at that time he was a man between sixty and seventy years of age—to climb Scotch mountains without a sense of fatigue, and with a feeling of lightness and buoyancy and pleasure which he would not have felt without the precious leaves. And the Indians—the Incas as they were called—held the coca plant in such superstitious reverence that it is actually used in some of their forms of worship, and in the days before gold and silver became a means of barter, the coca plant took the place of money in those regions. Of the coca plant, the part which was employed was the coca leaf, which was small like a tea leaf, but rather larger and longer, and the taste and smell were not unlike tea when it was fresh. We did not have any fresh leaves here. In South America the native Indian dried the leaves, and by mastication made pellets of the coca and put them into his pouch before setting out on a journey. While on their journey or during their daily walk they would take one of these little pellets or balls, and moisten it with a little lime and chew that. In this country we knew it chiefly in the form of extract of the leaves. Cocaine was got from this coca, and though not the only derivative was the chief one, the one possessing the numbing properties of coca in the highest degree, for it numbed not only fatigue, but deadened pain. Probably, therefore, it was due to the cocaine it contained that coca owed its virtues. Chemically, cocaine was a crystalline compound of carbon, hydrogen, nitrogen and oxygen, as $C_{17}H_{21}NO_4$; an alkaloid which was practically insoluble in water, but it was very readily soluble in alcohol, ether, chloroform, vaseline and oils. It was not very much used, but he hoped to show that it would be better if it were more used, for he thought a mistake was sometimes made in using some of the salts instead of the pure alkaloid. Cocaine combined readily to form salts, of which the best known and most widely used was the hydrochlorate. Other known salts were the benzoate, the sulphate, the tannate, the oleate, salicylate, and the citrate. He was not up in dentistry, but he understood citrate was most suitable for use in dentistry—what was the reason he could not say; however, he was not an authority on the point. The hydrochlorate occurred in very fine needle-shaped crystals, so fine and minute sometimes as to make the salt seem to be a white amorphous powder. It was a little bitter. The only objection to hydrochlorate was that it was apt to cause a little irritation, and one surgeon recommended benzoate or

salicylate in its stead. Hydrochlorate was soluble in water in the proportion of one to four, freely soluble in alcohol, but practically insoluble in oils.

The physiological action of cocaine might be briefly summed up by saying that it paralysed the sensory nerves. It paralysed first of all, all the primary sensory nerves, and if the administration were continued it acted on the motor nerves, and acted generally as a narcotic. Its action on the sympathetic nerves was that of an irritant, and this explained the effect one saw when cocaine was dropped into the eye. He had never had personal experience, and he did not know whether it diminished the redness of his gums or not, but he knew very well that the constant use of it would diminish the redness of the eye; if they dropped some into the eye they would find that in the course of five or ten minutes the white of the eye would become whiter still, due to the irritating effect upon the nerve filaments surrounding the capillaries, so diminishing the blood supply, and it was possible that this helped action as a local anæsthetic. Cocaine was sometimes said to be an antiseptic; but whether it was had not been sufficiently proved. There was no doubt that cocaine, when kept in solution, was very apt to develop within itself some fungoid growth. Whatever the strength of the solution was, it was certain that after a time it developed a certain mass of fungoid growth. It seemed very strange that it should be so if it were an antiseptic. As a safeguard he always recommended the addition to the solution of cocaine of either boracic acid or mercuric bichloride, and then they would get a solution of cocaine which would keep practically for an indefinite period. As to its poisonous effects, he should say a little more about that later on. That cocaine was a local anæsthetic was, he thought, generally well known. It was in the year 1885 that Dr. Köller, of Berlin, first found out that it was an anæsthetic when dropped on the eye, and it was not long after that it was brought into practically general use in this country. Personally, he had made a series of experiments with it. He had injected it under the skin, and the result was always practically the same as when dropped on the eye, *i.e.*, in each case it acted as a local anæsthetic. He used a 5 per cent. solution. In about five minutes it began to have a numbing effect, and in ten the effect was tolerably complete; and in about half-an-hour the effect would begin to pass off, and at the end of an hour, as far as any anæsthetic properties were concerned, its effect would entirely pass off. When dropped in the eye the effect of dilating the pupil possibly did not pass off for three or four hours. Some people told them it spoiled the power of accommodation in the eye. In narrating his experiments on himself, he said the effect of the cocaine on his power of accommodation was comparatively limited. Drawing round the puncture made in hypodermically injecting cocaine, a circle with a radius of about three-

quarters of an inch within this area, his skin was absolutely insensitive within five minutes after the injection of the cocaine. He could pinch the skin freely round the part without feeling anything at all. He had used it in local surgical operations, such as removing small tumours, wens in a man's head, &c., and within five minutes after injecting the cocaine there was no pain whatever—that is, between the operation beginning and concluding, the man on whom the operation was made affirmed that he had practically no pain. Not long ago he had the misfortune to have to visit one of the dental profession, and he requested to have cocaine as he was going to have a tooth extracted. He must not say that he absolutely felt nothing at all; he did not feel the actual extraction of the tooth: what he seemed to feel most was the forcing of the forceps to get proper hold of the roots of the tooth, but the actual pulling of the tooth pained him very little. Carrying back his recollection eighteen years—to the last occasion of his having a tooth pulled—he knew that his experience then was very lively, but on the occasion just referred to he suffered very little. There was no doubt that cocaine had the power of temporarily destroying the sensibility of the mucous membranes of the body; not only did it numb the eye, but the nose and all the mucous membranes. It practically had no effect on the skin if merely rubbed on in the form of a lotion, but if it were injected beneath the skin it had the action he had already described.

The use of cocaine is obvious. It has been used in general surgery and in dentistry, and even in general medicine. As to its use in physics, he did not think it had had a very general and extended use. It had been occasionally useful when given internally, but its administration had to be carefully graduated and its effects carefully watched. In general surgery, in ophthalmology, in otology, and in dentistry, its uses were very varied. In general surgery, at any rate, it had a use in the form of a local anæsthetic. For purposes of a local anæsthesia he held cocaine to be absolutely without a rival. As a medicine or local application merely to relieve pain, he thought there was not quite such a wide field for its use, but it might be used to relieve acute pain, and he did not see why it should not be useful in dentistry in the same way as he had been endeavouring to describe. It seemed to him that they could use cocaine not only to deaden pain when they were doing some dental operation, but perhaps to relieve pain in certain cases, and it might be mixed in oil or lanoline. For this the pure alkaloid must be used, the salts not being soluble in oils. As to the question of the failure—one which crept into medicine as in everything else—he thought the general reason for failure was owing to idiosyncracies on the part of the patient. Drugs would not act on some persons and they would on others. So it was with cocaine. He found that in some cases the injection of cocaine had very little effect; or it might be that there was membrane irritation and con-

gestion, and in such cases the cocaine was practically drained away before it had had time to take effect. Further, some persons were so intensely nervous that on that account alone it is absolutely useless to attempt to do anything in the way of using cocaine on them.

Cocaine poisoning was fortunately a comparatively rare thing. There had been only three fatal cases up to date, and these all occurred before the year 1889. In one case 1 drachm of a 20 per cent. solution of cocaine, equivalent to 12 grains of the salt; in another case there were $3\frac{1}{2}$ grains; and in the other $22\frac{1}{2}$ grains. These were the only fatal cases which had been recorded, and apparently, in each of the cases, death resulted from failure of the heart's action, probably from paralysis of the nerves that stimulate the heart. As to the poisonous effects, short of death, the chief symptoms observed were headache, vertigo, pallor, difficulty of breathing, cold clammy sweats, tottering gait, often hallucinations and delirium. He did not find the pulse materially affected. In the case he treated, the patient had taken at intervals of three hours two 1 grain doses of cocaine with no untoward result, but after the third dose, and within fifteen minutes, poisonous symptoms were developed, and shown chiefly in great rapidity of respiration, with a feeling of suffocation, coldness of the extremities, pupils somewhat dilated, but the pulse not noticeably affected, the chief distress being as if every breath were to be the last.

He had here the experience of a colleague of his who went to have a tooth extracted. Taking with him a 20 per cent. solution of cocaine, he went to the dentist and had two grains of the salt injected, and his description of what happened was as follows:—"The pain ceased almost at once, and the teeth were successfully extracted. I could feel the grasp of the forceps, but no pain whatever; very soon I felt a tingling in the hands and feet, and this was speedily followed by an increased rapidity, gradually giving way to increasing difficulty of respiration, ending finally in two gasps for breath, each of which seemed as if it must be the last. The window of the room was opened, and brandy was given to me, which I could not at first swallow, but which once swallowed gave almost instant relief. The respiration improved, but it still required a great effort to breathe. More brandy was administered, and I was able to walk, with help, into another room, and in three-quarters of an hour went away in a cab. I went to bed, and for five or six hours I still felt the difficulty of breathing, though not so markedly, while from time to time there was a return of the tingling in the hands and feet. During the whole time I was at the dentist's I felt perfectly conscious, told him to open the window, and when I felt at the worst, held out my arm and told him (as I thought) to inject ether. The dentist now tells me that he could not make out what I was saying, which accounts for his not injecting the ether, and that he opened the window because my pupils were dilated, and my face pale and covered with a cold sweat.

I felt certain also that I heard the dentist talking to someone else in the room, but this he assured me was a pure hallucination. During my unpleasant experiences, among other thoughts that poured through my mind, there came the conviction that the cause of it all was paralysis of the respiratory centre, which would cause death, for I was fully persuaded at the worst stage that this was to be the end, and I pictured to myself the last gasp of patients I have seen dying from injury to the spinal column."

As to the treatment of cocaine poisoning, the best thing to be done was the free administration of brandy and friction of the extremities. If they had any mustard handy for friction so much the better, and ether, if it happened to be at hand, would be upon the whole a better remedy than brandy; but almost everybody kept brandy in the house as a medicine, if not as a liquor, and it was the most handy to administer. It should, however not be given in too big doses. It was a great mistake to give large doses of it, and the best effect was produced when a teaspoonful was taken perfectly neat and taken at intervals of a quarter of an hour. As to what constituted a poisonous dose it followed from what he had said that it was very indeterminate varying from $3\frac{1}{2}$ grains to $22\frac{1}{2}$, and moreover probably as much as 5 grains was given, so that they did not know what was a fatal dose of cocaine. He was of opinion that if they got beyond 2 grains of cocaine they got into the region of great danger. Personally he never used a stronger solution than 5 per cent., and of this he never had to use more than 15 minims, which was equivalent to $\frac{3}{4}$ of a grain of cocaine. He conducted one experiment with a solution up to nearly 25 per cent. and the only difference between that and the 5 per cent. solution was that the effect came on a little quicker, lasted a shade longer, but was not any greater. A 5 per cent. solution invariably enabled him to do all he wanted to do without pain or inconveniencing the patient. What then were his conclusions as regards cocaine? As he had already said he thought it the local anæsthetic par excellence. We had nothing to approach it at present; there had been one or two others proposed but he did not think there was anything which had yet come up to cocaine for general applicability. It could be applied as a solution hypodermically, or as an inunction, and as he had said the inunction ought to be made with the pure alkaloid and not with the salts of the alkaloid. The solution to be used he thought ought not to exceed 5 per cent., or at any rate on very rare occasions. If it did it ought to be used extremely sparingly. Certain he was that they ought never to inject at one time either in the gums or in the skin of a patient, a solution of cocaine containing more than $\frac{3}{4}$ of a grain. If that had no effect they might proceed to inject a little more but they ought to proceed very cautiously because they must remember the poisonous effects. The symptoms came on extremely quickly and though fortunately not usually fatal, were

sufficiently alarming to put them off their guard. As to the limitations to the use of it he did not know what they were beyond the peculiarities of the patient through nervousness ; it might be used to relieve pain generally, but its chief use and value was as a local anæsthetic for operations, and until they found something that was absolutely free from danger cocaine would still hold the field as our most useful local anæsthetic. He begged to thank them for having given him the opportunity of being present.

The PRESIDENT said they had had an exceedingly interesting and valuable paper on a subject which came under their notice very often. He thought none would leave the room without benefiting by the remarks which Dr. Scougal had given. He should be glad to have some discussion on the paper, for it deserved discussion, and if those gentlemen who had had a great deal of experience of the use of cocaine desired to take part in the discussion they would be glad to hear them.

Mr. L. MATHESON next read a paper on "Dry Cavities," which will appear in our next issue.

The PRESIDENT said they had had an exceedingly useful and practical paper by Mr. Matheson, and as the question was somewhat on trial he hoped it would elicit a good discussion.

Mr. BINNS then explained the manner in which he made saliva ducts, namely, by having a pipe fixed, through which water was conveyed direct from the main. It was not necessary to get an expensive apparatus, and having obtained a small brass tap he carried the pipe to the mouth-piece, and it worked very well. It was a very simple way—simpler than that in operation for some years. He got the water direct from the main, it had a good force, and no danger, and it did not clog, as sometimes happened with the other arrangement.

The PRESIDENT said he had been asked by the President of the Reception Committee of the parent Association at Manchester to appeal to the members of the Midland Branch who had not volunteered to subscribe towards the expenses. When they visited the metropolis of the north, he thought the Midland Branch should not be behind-hand, but come forward and receive the Association in a befitting manner. The treasurer would be happy to receive the names of those gentlemen who would give him a subscription. If they would kindly put their hands into their pockets and help them out of a difficulty, it would be satisfactory. Before they left the hall he thought they might befittingly propose a vote of thanks to the gentlemen who had read papers, and those who had given demonstrations and come long distances to cater for their instruction. He would like also to thank the Mayor of Huddersfield for the kind and hospitable way in which he received them, and personally he could only express his regret that more members of the Branch were not able to accept his kind hospitality. He desired also to thank the members of the Branch who

were resident in Huddersfield, for the effort they had made to make the gathering a great success.

Mr. BRUNTON seconded the resolution, and said they could not too much appreciate the efforts which had been made by Mr. Senior and Mr. Bradbury in connection with those meetings. They all knew what work meetings of that kind involved, and he was quite sure those gentlemen deserved the thanks of the members.

The resolution was passed and the meeting terminated.

Subsequently Mr. G. G. CAMPION gave an exhibition of lantern photographs of models, showing the result of extracting the six-year molar.

THE DINNER.

The Dinner took place at the George Hotel, under the presidency of Mr. W. E. HARDING, who was well supported.

The CHAIRMAN proposed the "Queen," and in doing so referred to the domestic trouble through which the Royal Family had lately been passing, and said that the Queen and the Royal Family had received the sincere and heartfelt sympathy of the people.

The toast was musically honoured.

Dr. J. SPOTTISWOODE CAMERON, of Leeds, proposed "The British Dental Association and the Midland Branch." There could be no two opinions as to this being the toast of the evening, because it was the toast of the Society, and the Society was the occasion of this meeting. As he had a sort of official capacity as president of kindred and sister associations—the Yorkshire branch of the British Medical Association, and the Yorkshire branch of the Medical Officers of Health Association—he had great pleasure in proposing the toast. Men were associated in political, family, and religious ways, and this evening they represented three associations that were doing something for the health of the community. The medical officers of health were doing what they could to prevent the ailments to which "flesh is heir," and to give their friends of the larger association as little to do as possible; and he looked upon it that the Dental Association were also members of the preventive branch of the medical profession. Being dentists, they would enable people to have better digestion, and in time there would be very little for their brothers practising the healing art to do. In attempting to decide which of these three branches was really the most important, he was reminded of the story, which he dared say they would most of them remember, in Lessing's "Nathan der weise," as to which was the best religion—the Christian, the Mahommedan, or the Jewish. In the course of the story the following passage occurred:—

Der rechte Ring
Besitz die Wunderkraft geliebt zu machen
Vor Gott und Menschen angenehm.

The true Ring
Possesses the wonderful power of making its owner beloved
By God and man desired.

He would not attempt to say which of the three professions did the greatest amount of good to the community, but he would drink to the health of the British Dental Association, and couple with the toast the name of Mr. Waite, than whom no one could better represent that Association.

Mr. WAITE, replying to the toast of the "British Dental Association and Midland Branch," said there were two or three things he wished to say in the presence of the gentlemen who had honoured them by their company that evening; because the principal object of the annual dinner was to afford an opportunity for informing the medical profession and the public of the advanced position dentistry has taken up within recent years. He would like to make one prefatory remark. He was an entire stranger to Huddersfield, and therefore they would understand there could be no local or personal allusion in anything he might say.

The British Dental Association is thirteen years old. It contains nearly a thousand members. These include the best educated and best known practitioners all over the country. The number is not large, but the standard of admission is ethical, and therefore somewhat restrictive. Dentistry is still in a state of transition; we carry a large tail, and the tail almost over balances the dog! We hope by-and-by some of the tail will be absorbed, and more will become atrophied, then perhaps the dog will move more easily; meanwhile progress is slow. At present, however, membership of the British Dental Association stands for a fairly educated and respectable professional man. It may be new to some of our visitors to be told that the curriculum of education required for the dental diploma is not less exacting than that provided for the general practitioner. Dental students have several subjects cognate to their own specialty, in addition to the ordinary courses of anatomy, physiology, &c. Then as to ethics, the ethics determined by the British Dental Association are quite as strict as those required of medical men; altogether, when qualified, dental students are, educationally and professionally, on a par with the general practitioner. If we turn in the direction of possibilities, we find that dentistry has advanced with rapid strides during the last twenty years. We are adopting the highest principle that can govern the conduct of professional men, viz., the principle of endeavouring to serve the public in the best possible manner, irrespective of time, or toil, or outlay involved in the process—to state the case in other words, the educated dental surgeon desires to restore and preserve the organs with which he has to deal, whenever they afford the most moderate prospect of future usefulness. Conservative dentistry is the

order of the day, and he made bold to say—and he said it with no fear of contradiction—they would search in vain in any department of surgery for more delicate, or more beautiful, or more valuable work, than that which might be seen in dental operating rooms, or in the operating rooms of dental hospitals. Ophthalmic surgery has made marvellous advance, but he believed dental surgery had progressed even more. The possibilities of the art seem to be well nigh inexhaustible, did the public but understand the value of the services at their command.

As had been pointed out in the paper read by their old friend Mr. Wormald that afternoon, the removal of partially diseased teeth for the sake of inserting artificial teeth was rapidly becoming a subordinate and secondary matter—a process justifiable only when, through ignorance and neglect, disease has been allowed to obtain complete mastery. Doubtless the astounding inducements offered to the public in the shape of cheap artificial teeth somewhat retard the development of our possibilities, and will do so until the medical profession and the public begin to realise that the highest service dental surgery can render is to save natural teeth. It is scarcely utopian to anticipate a time when the removal of permanent teeth will be reduced to the same category as the amputation of a limb.

We feel that we should call upon the medical profession to inform themselves as to the possibilities of dental surgery, so that they may help their patients to preserve their natural teeth. At present teeth are lost largely through ignorance, and we are compelled often to remove teeth which need not have been removed but for mistaken advice given by medical men. He never heard of a dentist attempting to treat rheumatism, or hysteria, or any ailment outside his own domain, but they did often hear of medical men giving physic for toothache, until, driven frantic by suffering, the patient rushes off and sacrifices a tooth, which, as we well know, might have been made comfortable and serviceable for years had it been rightly treated in the first place. He never remembered a case of a dentist sending a patient to his doctor with a request that a finger should be cut off or a tumour excised, but they did sometimes receive messages from medical men, requesting them to remove certain teeth, and these messages were not always accompanied by any qualifying condition as to whether they found it necessary to do so. Now they wanted to come to a better understanding. They were all anxious to work on the most generous and harmonious terms with medical brethren. They felt the desire, however, for a little more reciprocity of professional respect.

They claimed to be experts in their own department. Met as they were in the heart of the manufacturing district, he thought of one more item. It seemed to be the fate of all professions to be moulded more or less by their environment ; and after an experience extending

over upwards of thirty years in Yorkshire and Lancashire, he thought in these localities professional *esprit de corps* sometimes suffered by contact with the commercial element so strongly pronounced. Paddy's maxim "Every man for myself" seemed now and then to override considerations of professional esteem and mutual recognition more than is meet. It could scarcely have escaped the attention of medical men, even in remote districts, that the dental profession is now a body of registered practitioners, and that an unregistered individual practising dentistry occupies the same position as an unregistered practitioner of medicine. We wish to implant this fact firmly in the medical mind. If medical men should, through ignorance or from any other cause, lend themselves in any way to irregular dental practice, they unwittingly degrade their own profession as well as ours, and the public will surely detect in the long run an alliance so unnatural and indefensible. We appeal, therefore, to our medical friends everywhere to help us in elevating the standard of dental practice. They can with no trouble to themselves render us peculiar and valuable aid. They have opportunities sacred to their position, by which they can exert a powerful influence on the public mind. Rightly employed, their influence is always for the good of mankind. In relation to the great struggle against disease, the possibilities of the future are utterly beyond our imagination. We do well, therefore, to recognise and cultivate a true fellowship, in the increase of facilities, in the development of ideas, in the perfecting of methods, and most of all in the emulation of service, so that humanity everywhere may come to recognise us as its true friend in all those circumstances when man wants noble and self-sacrificing effort, to ease his burthen, or to restore his comfort. He held the "healing art" second to none in its beneficent purpose, its earnest devotion, its truly sympathetic labour, and he thought there was no direction in which nature is more efficiently nurtured by art, or wherein the ministry of mercy is more marked, than in the relief, the comfort, the substantial assistance afforded by the practice of conservative dental surgery.

Mr. F. HARRISON proposed "The Town and Trade of Huddersfield," and Dr. SCOUGAL replied.

Mr. LEONARD MATHESON proposed "The Medical Charities." By their training and daily work they were able to appreciate the difficulties with which medical men had to contend and the sacrifices they had to make in carrying on medical charities. The principal medical charity in Huddersfield was the Infirmary, and he was sorry to find that it had no dentist attached to it, and he hoped that when next the Branch came here they would find that there had been a dentist appointed to the institution. He thought they ought to see that there was no hospital in the country worthy of the name which had not a qualified dentist on its staff.

Dr. CLARKE, in replying to the toast, said he must first make a

remark about there being no dental surgeon at the Infirmary. The question was in abeyance, for the Infirmary doctors were in the position that they had not sufficient funds at their disposal to carry out the thing properly. Personally, he thought that a town like Huddersfield ought to have a small dental hospital where the work could be done more thoroughly than he thought it could be done in connection with a general hospital.

Mr. A. FOTHERGILL (the ex-President), proposed "The Benevolent Fund." He explained that when that Fund was proposed and commenced he had grave doubts both as to its necessity and its desirability, but further acquaintance with the work of the institution had satisfied him that he was in error, and that it was a useful and in-offensive institution. There was no doubt that among them were many cases of poverty which arose through failure of health, through the early removal by death, before there had been any opportunity of making provision for the widow and young family, through misfortune over which there could, perhaps, be no control, and these cases he thought must move their feelings. Anyone who looked at the way the Benevolent Fund was conducted must be satisfied with the policy and the delicacy with which that Fund was administered. He made a special appeal on behalf of the Benevolent Fund, and asked them to bear in mind those who were worse off than themselves, and wherever there was an opportunity of forwarding the interests of the Fund, he trusted they would all be ready to do so. The collection made at the luncheon amounted to £5 10s. 3d.

Mr. GEO. BRUNTON responded, and said the British Dental Association held a position second to none in the way of raising funds for charitable purposes.

Mr. RENSHAW, in the absence of Mr. J. W. Senior, who had been expected to propose "The Visitors," did the duty in very appropriate terms.

Dr. HALL, in replying, said he desired to assure the Dental Association that the medical profession in Huddersfield had always been loyal to the dental profession, and regarded it in an especial light.

Mr. S. WORMALD proposed "The President," and said he was a gentleman who commanded universal respect, and therefore he was delighted to see him occupying the post of President of the Midland Branch.

The PRESIDENT thanked them for the way in which they had honoured the toast, and he expressed the hope that he would be able to hand the office on to the next president unsullied, and that the new president would be as cordially received among them as he had been.

The proceedings shortly afterwards concluded.

Scottish and West of Scotland Branches.

The joint Annual Meetings of the Scottish and West of Scotland Branches of the British Dental Association were held in the Hall of the Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, on Friday, 3rd June, 1892, the Members present being Messrs. W. F. Martin, J. Rankin Brownlie, Wm. Taylor, James Cumming, William Dall, J. M. M'Cash, Thos. Wilson, John A. Biggs, C. Rees Price, Alexander B. Young, D. R. Cameron, Oswald Fergus, Alex. Naismith, W. H. Gray, James Cameron, Wm. Wallace (Glasgow); J. Leslie Fraser (Inverness); John Stirling (Ayr); John Urquhart Crichton (Perth); Walter Campbell (Dundee); Malcolm MacGregor, Andrew Wilson, W. Bowman Macleod, J. Graham Munro, J. S. Amooore (Edinburgh); W. H. Williamson (Aberdeen); P. Cumming (Falkirk).

SCOTTISH BRANCH.

Dr. WILLIAMSON, the President of this Branch, took the chair and called on Mr. Munro, the honorary secretary, to give in his report.

Mr. MUNRO stated that the Branch had had no business to speak of to take in hand during the year. Since the last Annual Meeting one Council Meeting had been held, at the Edinburgh Dental Hospital, on Monday, 16th May, when the Council had recommended "Direct Branch Representation" as the subject for discussion at the joint Meeting held to-day.

Mr. WILSON, honorary treasurer, stated that the funds amounted to £31 17s. 3d. last year, and at present they amount to £36 9s. 8d., the expenditure during the year having been £4 11s. 6d.

The following were elected office-bearers for the year 1892-93:—President, Dr. W. H. Williamson; Vice-president, Mr. J. R. Brownlie; Treasurer, Mr. Andrew Wilson; Council, Messrs. J. S. Amooore, P. Crombie, J. Leslie Fraser, M. M'Gregor, C. Matthew, C. Rees Price, R. Reid, P. S. Walker and G. W. Watson; Honorary Secretary, Mr. J. Graham Munro, 16, George Square, Edinburgh.

WEST OF SCOTLAND BRANCH.

The PRESIDENT, Mr. W. F. Martin, in the chair.

The minutes of the previous meeting were read and confirmed, and Mr. Alex. Naismith was balloted for and unanimously elected a member of the Branch.

Mr. W. WALLACE, the honorary secretary, reported that the Branch had had three general meetings during the winter, at which Mr. Martin, Mr. Brownlie, Mr. Biggs and Mr. Gray made casual communications. The various papers related to recent improvements in the methods of colouring teeth, illuminating the mouth, and rendering metals easily fusible. At the meeting held on 9th March, Mr. John

Turner (Edinburgh) read a paper on "Continuous Gum Work," and exhibited specimens illustrative of the process. Dr. Cockburn Smith contributed an article on "The Physiological Action of Nitrous Oxide Gas, and on the Advisability of having Oxygen ready for use in Hospitals."

Mr. REES PRICE, the honorary treasurer, reported that the subscriptions for the year amounted to £15 5s., bank interest 8s. 9d., making a total of £39 9s. 10d. The expenses were £5 1s. 2d., leaving a balance in hand of £34 8s. 8d.

Mr. Rees Price proposed and Mr. Biggs seconded, that Mr. J. R. Brownlie be nominated as a candidate for the Representative Board; Mr. Biggs proposing and Mr. Brownlie seconding, that Mr. Rees Price be nominated for election.

The following were elected office-bearers for the ensuing year:—President, Mr. J. Austin Biggs (Glasgow); Vice-president, Mr. J. Stirling (Ayr); Honorary Treasurer, Mr. C. Rees Price (Glasgow); Council, Mr. William Dall (Glasgow); Mr. W. H. Gray (Glasgow); Mr. Alexander Whyte (Glasgow); Mr. Alexander Wilson (Edinburgh); Mr. Thomas Wilson (Glasgow); and Honorary Secretary, Mr. W. Wallace, M.B. (Glasgow).

The CHAIRMAN:—Before retiring from the position that you so generously elected me to twelve months ago, I cannot but acknowledge the kindness and assistance I have received from the members of the branch, and I express my thanks to the Council for their attention and attendance at the meetings; to our Treasurer, not on account of his financial duties, but rather on account of the assistance that he as an ex-Secretary has given; to the members of the branch who have brought forth papers, items of interest, and notes of cases in practice; and to our Honorary Secretary for having done so much in securing the promises of these papers. Before I ask Mr. Biggs to take the chair, I wish to express the hope that he will find the affairs of the branch in a somewhat similar position as when I took office.

Mr. J. AUSTIN BIGGS, L.D.S.Glas., the newly elected President, then took the chair, and said:—

GENTLEMEN,—I thank you for the honour you have done me in electing me to the office of President of the West of Scotland Branch of the British Dental Association, and you may rely upon me to be diligent in its interests, and to be unwearied in my efforts to maintain the branch's influence, usefulness and importance during my term of office, in which I rely upon your indulgence and support.

That the branch is useful and vigorous is evident, not only to the profession but to the public also, for we have educated them up to distinguish between charlatans and dentists. They are beginning to see the necessity of consulting only qualified men. They are beginning to know the advertising quack and to see that we have the power and means to assert it in preventing many of them from using even the title of dentist.

The Dental Hospital and School of Glasgow with which a few of us are connected, and which has been in existence for close on thirteen years, has hitherto been working at a great disadvantage, and is comparatively unknown.

We have been hampered for want of funds ; yet the staff of officers have not only given their services gratuitously, but have also contributed financially towards its support.

You men from the capital have good reason to be proud of your hospital, even as it is. But you are not satisfied and have launched forth in a scheme to build for yourselves one worthy of grand Auld Reekie, and I bid you God speed in your efforts.

You see, I own and deplore the condition of our hospital in Chatham Place, but I hope to let you know shortly that an application we have made to be allowed to participate in a fund to aid charities may be successful, and that we may be in a position to wipe out the scandal of the second city of the United Kingdom, being so far behind in providing relief for her suffering poor, 4,622 of whom reaped the benefit of this institution last year, which means about 5,500 operations, not only for relief but for the preservation of their dental organs, at a cost of about £250.

What other institution can show such results at so low an expenditure, as, of course, that includes rent, taxes, and material? Let us then be patient and courageous, and, as a society, endeavour to aid every scheme beneficial to the poor in the cities to which we respectively belong.

I trust the day is not far distant when such a scheme as that of Mr. Fisher's, of Dundee, will become the rule of all our educational boards :—That the teeth of children of all ages may be under the inspection of a qualified examiner, and not left to the tender mercies of careless or indifferent parents, whose neglect at a tender age may cause vast suffering and life-long regret.

Not only so, but I trust, like Mr. Smith Turner, of London, that the day is near when parents will, aided by their physicians, come to realise that care is required long before the educational powers are called in to requisition for the salvation of the teeth of the present generation. He gave to my mind the most original, scientific, practical, and useful address, as the President of the British Dental Association, that it has fallen to our good fortune to listen to. He spoke of the starved teeth of the present age. We all know what that means. That the teeth *in embryo* are hurried into existence, regardless of the want of the proper constituents, and that ignorance on behalf of the parents as to the elements the food should contain, is the main cause of the hopeless teeth that we sometimes come across.

It is a pity that scientific subjects have to be eliminated from educational departments generally, because of the difficulty of con-

veying instruction of a useful description, and disassociating from it ideas which are apt to corrupt the youthful mind. Yet, surely, medical science, ever prolific in her resources, should devise some means of saving our descendants from still further degeneracy, physically or morally.

The mechanical department of our practice has been fairly active this year. Mr. Harry Rose, of London, having done something to simplify and expedite the working of gum enamels, for which the profession is indebted. Mr. John Turner also, while not claiming originality, has kindly given freely his thoughts and experience in that direction, for which this branch feels highly indebted. My old friend, Mr. Charles Hunter, furnished us with a new edition of "Mechanical Dentistry," which, I am sorry to say, he did not live to see the issue of.

Mr. Booth Pearsall has been, and is busy in the same direction, and I expect we shall soon be in possession of a work of a very high standard. Of one thing at least we may be assured, viz., he will certainly accomplish what he undertakes, with all his might.

Umbrage has been taken here in the West at the number of non-qualified men who have got upon the Register during the last year. But on account of the recommendation of the Representative Board, it was thought inadvisable to prosecute, and in view of the fact that we have attained all we could desire in having an end put to this style of fraud for ever.

No ; the British Dental Association is not sleeping. It was formed about thirteen years ago, and already there are about one thousand members on its roll.

I trust the zeal of all its members will be enlisted in its welfare, and that they will all kindly remember its Benevolent fund.

At the request of the Chairman, Mr. W. B. MACLEOD then opened the discussion upon the subject of Direct Branch Representation, and in doing so said : Mr. Chairman, and gentlemen, so far as I am aware, the first step in this movement began at Exeter, when an alteration in the bye-laws was made to the effect that each Branch should have the nomination of two members to the Representative Board. At that time the popular idea was that nomination carried with it election. Had one thought for one moment, however, what this meant, it would have been seen that nomination could not possibly carry election, because—to use another phrase which may express the opinion—the lay membership of the Board consists of thirty members, a third of whom retire annually, and consequently, as there are only ten retiring each year, and as there are nine Branches it is quite impossible that the Branches could elect eighteen men instead of the ten who retire, unless the members of the Board were largely increased. I had some correspondence with one or two gentlemen

in the Midland Counties, and they suggested that each branch should have the power to elect two representatives to the Representative Board. In the course of that correspondence I pointed out, that if this were done it would be necessary to increase the membership of the Representative Board, which would then become too unwieldy for the quiet and speedy transaction of business.

At the last Representative Board meeting it was considered that a smaller representation would be satisfactory, so long as there was *direct* representation. Theoretically I was in favour of direct representation, and on this understanding I seconded Mr. Brunton's motion, under which the consideration of the subject was remitted to the Business Committee of the Representative Board with powers to bring up at the next meeting bye laws embodying this idea. I most emphatically stated then what I say now, that if each Branch sent up two direct representatives it would render the Board very much too large. I gave it as my opinion at that time that while I went in for direct representation I did not want, and never would support, direct nomination. The Association has rights as well as the Branches, and being the whole body it had larger rights than the Branches, and I believed that the representatives elected by the general body of the Association should always be in greater number than those elected by the Branches, and that if the Branches have one-third of the lay membership, we would get in this way the principle established. We would thus have in this direct representation all that we could expect or demand. I pointed out further that we had nine Branches, and we might have as many more, and that in a short distance of time a tenth Branch would be formed, and this would increase the *ex-officio* members of the Board by two, namely, the Secretary and President of the Branch, and also increase the lay membership by three. In that way they would have the direct representation of the Branch with two others from the General Association, raising the number of the Representative Board from thirty to thirty-three, and that as each Branch was added to the Association the lay membership would increase in that way by three, and one-third would have to retire. Since that meeting the Business Committee have decided to propose that each Branch shall be entitled to two representatives annually who shall hold office from the end of the Annual Meeting to the end of the next Annual Meeting of the Association.

I think it unwise that every year you should change the membership of the Representative Board, or that you should have the power to do it, because if you elect men for one year, and send them up to London to a Board which meets only four times during the year, it is almost impossible that you would get gentlemen to go to these meetings. Even if you did elect a man it is almost impossible that he should within that short period come in contact with the members,

or that he should gain that intimate knowledge of the working of the Representative Board which is necessary, and also gain a knowledge of the business that has been done by the Representative Board in previous years in discussing possible questions which may crop up from time to time. In fact, you may put it in this way, that anyone elected for one year will not be a representative, but simply a delegate. If he is sent up there he goes up with a knowledge of his own Branch, but he does not go up with knowledge from different parts of the kingdom where there are different circumstances to be considered and different necessities to be provided for ; so that whatever his idea may be when he leaves this part of the country, he must of necessity modify the opinions with which he started. If you give him instructions to vote for this or that, you send him up with imperfect knowledge on a subject which neither you nor he has, and if he ventures to give a vote upon the knowledge that he has acquired here, he is ousted from his office and you send another man up next year unless the delegate votes as he is bid. You will, therefore, not get a man of worth and standing as your representative, and he will simply be a delegate on the whole affairs of the Association. That is one bye-law which they propose to put before the Representative Board at the next meeting, and the other is that the Association shall elect twelve representatives to the Board annually. Now, the same objection holds to the Association electing from year to year. The bye-law does not say that twelve of the representatives shall retire annually, but that other twelve shall be elected for three years, and that would make thirty-six representatives for the Association. I have the same objection there that they simply become more or less of the delegate order, and that is not what intelligent and educated gentlemen would think of. You have, in the meantime, eighteen representing the Branches and only twelve representing the general Association, and that is not a just or fair proportion, and I thoroughly oppose that proposition also. There were several other propositions which had to come before us, but the meeting at that time had gone to such a late hour of the night that it was adjourned. As these have not been discussed by the Association, I do not think it would be prudent to take up any of the opinions and treat them seriously. They may be proposed and never seconded and never brought before the Business Committee at all. Another motion that was brought up was that instead of electing the representatives at the Annual Meeting by a show of hands or by ballot, a trial might be made this year as to whether it would be better to send out papers to every member of the Association with a list of those who were duly elected, and the gentlemen having the largest branches would be declared representatives. That is a matter on which one may have two opinions and neither be very far astray. It also covers this that if you send out voting papers to every member of the Association, and if you allow him in the case

of his study to adhibit his name to the paper, you take away the great incentive which would draw him to the Annual Meeting, and you thereby decrease the importance of the Annual Meeting both in point of number and in point of weight. If we look at the present Representative Board which has been elected under the old *regime*, I think we have a very good one. We have them from all parts of the country, and as for our own district I think we are extremely well represented. We have seven representatives from Scotland representing Branches. We have the President and the Secretary, and we have also had our *nominees* without opposition elected by the general Association, and at present we have no reason to complain. We have only seven for this reason that one was nominated by mistake, as his term of office had not expired. We have no possible reason to complain against the results of the old system, and I do not think it is possible for us to create any arguments which would be likely to weigh with the Association, especially if we proposed that the Branches should have two-thirds, and ignoring to that extent the rights of the larger body of men known as the general Association.

Mr. REES PRICE: I am very glad that the Representative Board have at last come to see that the present method of election is not a satisfactory one and that the Board are moving in the direction of direct branch representation. I agree with a great deal of what Mr. Macleod has said as to the unwieldiness of the Board if the numbers are much increased and I think every endeavour should be made to keep it within satisfactory limits. It is perfectly true that each Branch has two *ex-officio* members, but the election of these is peculiar and if the list of attendances at the Representative Board meetings is scanned it will, I think, be found that it is the *ex-officio* members who do not attend the meetings. It is the elected members who as a rule are most regular in their attendance. To be president of a Branch is considered a post of honour and is commonly conferred on men who from various circumstances are unwilling or unable to take such an active interest in the Association as regular attendance at the Representative Board meetings would imply. I am strongly in favour of keeping down the numbers of the Board, and I put forward this suggestion for consideration, whether it would not be desirable that the presidents of Branches, as such, should cease to be members of the Representative Board. We should thus get nine more lay members who would be available as direct representatives under the proposed bye-laws. The Board now numbers forty-nine elected and *ex-officio* Branch members. If the total number were raised to fifty-six, and if the presidents of Branches ceased to be *ex-officio* members, each Branch could send two members to the Board as direct representatives, and there would still be a majority of members elected at the Annual Meeting. This majority would be still further increased

by the honorary officials of the Association. The direct representatives of the Branches should certainly be elected for two, if not three years.

Under the present system a Branch sends up the names of members whom they believe are best fitted for election, and yet these names have to stand the test of election at a General Meeting held say at Exeter, where say, names sent up from Scotland are not so familiar. As things have been at the last three or four Annual Meetings, more names have been sent up than could be elected and some have been necessarily thrown out. With regard to what Mr. Macleod has told us, I should certainly say that as far as the work of the Business Committee has been performed, it seems open to considerable amendment. The suggestions will be discussed at the Board and then come before the General Meeting. Finally, I think that some change is necessary, and I am strongly in favour of two members being elected by the Branch every two or three years, and that they should not have to stand the test of election at the ordinary Annual Meeting.

Mr. WILSON also made a few remarks.

The CHAIRMAN then called upon Mr. Macleod to reply.

Mr. MACLEOD: I have very little to reply to, because Mr. Rees Price has simply said what I said myself, namely, that there should be a third of the body given up to direct Branch Representation, and he proposes a way in which this could be accomplished, by dropping the honorary President and getting two elected.

If you drop the honorary President you may claim another one in his place and one more likely to take an interest in the business. If the Association passes a resolution you may claim to have one-third, leaving two-thirds to the members of the general Association.

The CHAIRMAN: We have had the pros and cons and I shall be pleased to have an expression of opinion from any of the members present. We have had the matter ably discussed by two gentlemen who are well up in the subject of which they have been talking; but I do not think for myself that Mr. Rees Price has had the best of the argument. I think this is a matter to be well thought over with regard to its educational tendency in so far as it has not been brought to a final discussion in London, and therefore it might help the hands of those who wish the matter brought up. If the Branch is interested in the matter it would be very desirable to give an expression of that opinion and have some weight placed upon it in future.

Mr. MACLEOD then moved "That while the West of Scotland and Scottish Branches are in favour of direct branch representation, they are of opinion that direct branch representation should never exceed one-third of the whole membership of the Board."

Mr. J. R. BROWNLIE: I have great pleasure in seconding that resolution.

The CHAIRMAN put the motion to the meeting, when it was carried unanimously.

The CHAIRMAN proposed a hearty vote of thanks to the Committee of the Faculty of Physicians and Surgeons for their kindness in allowing the Branches the use of the Faculty Hall.

A demonstration was then given by Mr. W. Foulds Martin on "Colouring Mineral Teeth." Mr. Leslie Fraser exhibited his electric lamp, and Mr. J. R. Brownlie showed an ingenious application of an overshot wheel to a water motor attached to the cord engine, thus obtaining the greatest amount of work with least consumption of power. Mr. Thomas Wilson exhibited his improved water motor in conjunction with Matthew's suspension bracket. He also showed a new pattern flask for vulcanising rubber plates.

The members of the two Branches and guests, to the number of forty afterwards dined together at the Windsor Hotel, St. Vincent Street, Mr. J. Austin Biggs being in the chair, with Dr. Williamson as croupier.

EXCURSION.

"The President and Members of the West of Scotland Branch request the pleasure of Mr. —'s company on an excursion down the Clyde to Tighnabruaich, June 4th, 1892."

Hum ! well, I think I will ; though if the place is as fearsome as its name it must be dangerous outright. Stay, let me think for a moment ; can it be that there are sinister designs passing through the President's mind ? The rivalries between the east and west are as old as the hills ; I am but a hated Sassenach, and dwelling moreover in the east ; is it possible that there are deep-laid schemes brooding in the mind of the western chief to decoy me, and with me men who are the flower of the profession in the east, and thus, under the guise of hospitality, to entice us to some remote Highland glen, there once and for all to dispose of us, their hated rivals ? Who is this chief of the Western clan ? what is he like ? And I picture to myself a tall powerful Highlander, with a thick shock of matted locks, long powerful arms, strong brawny legs, open for inspection in the region of the knees, and a far reaching voice with an accent strongly savouring of North Britain. How should I address him ? There is no name given on the card, but whatever I do, I will take care to accord him due respect. Presumably he must be addressed in the native dialect. "Hoo's a' wi' ye the morn, Maister President ?" might do. However, I will sleep over it ; and I did sleep over it, with the result that I wrote and accepted, and in the following will be found the true and faithful account of my experiences.

The eventful morning came, and in the company of a friend who was to introduce me to the one upon whom I felt so much of my fate depended, we journeyed down to St. Enoch's Station (Glasgow), to train to Greenock, where the steamer was to be in waiting for us. Looking about me for the chief, I heard a voice at my elbow shouting in terms of familiarity which shocked me—"Hi ! Biggs, come and be

introduced to a gowk of a Saxon ;" and turning round I saw—not the kilted Highlander of my imagination, but a city gentleman of average proportions, with a beaming genial face, and a hearty "I'm glad to make your acquaintance, sir." While we were talking the guard came up, and said, with that musical intonation of the voice characteristic of the Glasgow citizen, "Will ye be goin' this mornin'? if ye are, ye'll hae to get in, I'm thenkin'; ye'll na get to Greenock standin' theer a' day—the trrain's just on startin'." Convinced of the force of his logic we got in, and were soon whirled away to Greenock, a town over which Ichabod might be inscribed; once a thriving, bustling place in the days of wooden-built ships, but now, when that industry is on the wane, Greenock, deprived of its main support, looks forlorn and dejected.

However, we were not in the humour to mourn over the fate of any city, there lay the steamer waiting for us, a bright sun shone out overhead, and as we steamed out into the open Firth away from the possibilities of calls from troublesome cares, the fresh morning air blew in our faces and cleared our minds of cobwebs, and dispelled every thought but that of abandoned freedom and enjoyment. How beautiful the sea looked in the clear morning light, the crisp curling waves beneath us, the gulls mewing and whirling above our heads or following in the steamer's track, and in the distance the white sails of the yachting craft looked like birds of a larger growth pluming themselves in the early morning sun previous to commencing their flight over the waters. The heart of the British subject naturally rises within him when he feels that he is abroad on the rolling wave (that is, provided the craft he is in is large enough not to feel the roll), and his instinct tells him that after all he really is a sailor at heart. Thoughts and reflections crowded in upon me as I looked around. I had always heard that there was nothing on earth to beat our hosts at smoking, and really they seemed to be doing their best, but their efforts paled into insignificance beside their own steamers. I do not think there is anything in the world to beat a Clyde steam-boat when it really gives its mind to it, but when it comes to the usual concomitant of smoking, perhaps the rivalry might become more apparent. To our chief and many of those on board our route seemed as familiar as their own street, and as we journeyed on they triumphantly pointed out the many castle-like residences of the wealthy Glasgow merchants, the lighthouses, the shoals and the buoys, with a personal pride that convinced me that our provident hosts had, the night before, seen that they had all been put properly in their places for our edification on this eventful day; and I feel sure that if I had suggested that the effect would have been enhanced had, say, the village of Dunoon been placed on the other side of the water, they might have given the suggestion their serious consideration. I say *might*—advisedly—because as a matter of fact they wouldn't. You may tell a mother

nursing her first-born that you think the little darling has a squint, or you may jeer at the pet fads of some ardent brother chip—but as you respect the symmetry of your features do not suggest to a Western citizen that his beloved Clyde scenery is capable of improvement—(and I am not sure but that he is not right, after all). But fresh air has its drawbacks: it creates a want—a feeling better known than readily described, and it was not long before some of the younger members amongst us could be seen furtively interviewing our grey-haired skipper as to about when—quite vaguely, you know—we should reach our destination? “Is it Tighnabruaich y’ere meanin’?” says he, with a discharge of gutturals that made me wonder if he had been storing them up for the past week, and was suddenly letting them off in one sublime effort; “Weel aboot wan o’clock or ha’ past twel’ may be.” This was reassuring, as on due enquiry made, we found there was nothing on board except of course some whiskey, which we were given to understand had been thoughtfully secured in case some of the ladies fainted, or a man fell overboard and had to be resuscitated—you see there really is no knowing what may not happen when a man leaves his own fireside, and even there it is sometimes necessary.

By this time the vessel was nearing the entrance to the Kyles of Bute, and I was having it carefully explained to me that previous to recent blasting operations the passage was so exceedingly narrow that any slight deviation from the strait path would be attended with dire results. Just as I imagined the narrows to be successfully cleared, close to my ear rose that awful mixture of a groan and shriek which a steamer utters when it desires to make its presence known. Looking nervously about me for a life buoy, I had my fears augmented by seeing our skipper signalling with a white something in his hand. To enquire of him if we were in any immediate danger was the work of a moment; but with a look of mingled condescension and contempt, I shall never forget, he replied “Hoots, man, what ails ye? I was just whustlin’ on ma auld wife ben yon hoose on the brae!” Thus reassured I had leisure to look about me at the fine scenery through which we were passing, and for which the Kyles are justly famed. Each season of the year is not without its special charm, and leafy June is not behindhand. Low down on the water’s edge the varying shades of green vied in their fresh beauty with the renowned luxuriance of the Emerald Isle, while high above them rose the everlasting hills in their sombre-tinted greys and browns—so dear to the heart of all Scotsmen. Here and there over the water around us, raced the small sailing craft, giving life and vigour to the scene, the strong breeze driving them merrily on, and as each fresh gust blew down the hill side they heeled over, till, to the eyes of the inexperienced landsman, it appeared as if each moment might be their last. And away in the distance lay picturesque little islets dotting the surface of the sea. “That island which you see on the

left hand," said a friend standing by me, "is used as a home for inebriates, where, cut off from access to alcoholic poisons, a chance is given them of adopting the narrow path. Once upon a time a lady was sent there by her friends, bent on her reform. She, pining in her captivity for active employment to beguile the weary hours, asked for something, anything—to do, even if it was only some washing—a request so reasonable, and modest withal, that her custodians at once consented; and soap, tub, and other requisites were duly provided. But—ah me! who can fathom the schemes of a feminine mind bent on deception? (Not her guardians at all events.) Taking her tub to the sea shore, she put not the linen, but herself into it, and armed with the kitchen shovel for an oar, launched forth upon the deep, and the next time she was heard of was in the precincts of the nearest 'pub.'"

But we were now opposite our landing pier, and disembarking, we soon found ourselves enjoying the hospitality our hosts had provided for us. Now, thought I, if our chief has treacherous thoughts lurking below his outwardly genial face, this is the time when, according to all history and melodrama, the secret sign will be given, and the western clan will arise in its might to avenge its feuds, and annihilate its foes—which was not comfortable for me, for as a Saxon interloper I should be the first to fall. I watched him carefully, saw him confer with a clansman on his left; he rose, fixed his eyes upon me. Now, thought I, it's coming, and I remembered fondly my friends and dear ones far away—my creditors—everyone. "Gentlemen," said he, "I rise to propose the toast of 'The Ladies,' coupling with it the name of my Saxon friend on the right." With a mind wrought up to such a pitch of excitement I know not what I said, but as I sat down there was a look of pity on the gentle faces of those I had feebly tried to represent, that it is perhaps as well that the words need not be chronicled here.

On our return journey Jupiter was in the ascendant; the rains descended and the winds blew, though not sufficiently to spoil our pleasure—for who thinks of going "doon the wather" without an overcoat?—and in the intervals between the showers the lighthearted and the frivolous sacrificed at the shrine of Terpsichore, in which they were aided and abetted by our chief, to whom I wish it to be distinctly understood the latter of these two epithets does not apply. But all pleasures must come to an end, Greenock pier was duly reached, and we were soon ensconced in the train returning to Glasgow, where we all separated to go to our several homes—north, south, and east—feeling in our hearts, and expressing with our lips, that among all the jolly good fellows of our acquaintance, the members of the West of Scotland Branch were hard to beat when on hospitable thoughts intent.

Southern Counties Branch.

THE following is the programme of the Annual General Meeting for 1892, which will be held at the Royal Pavilion, Brighton, (by kind permission of the Corporation of Brighton) on Saturday, June 18th.

10.30 o'clock a.m.—Council Meeting.

11.15 o'clock.—Excursion. The President-elect, Mr. John Dennant, invites members to accompany him in a coach drive to the Dyke (starting from the Pavilion). On the return journey, a visit will be made to the Museum of British Birds, containing the collection of the late Mr. Booth, and considered to be the finest in England.

The President-elect invites members to Lunch (1.30).

3.0 o'clock.—General Meeting. *Agenda*: Election of Officers and Council for the ensuing year.

Proposed alterations of Bye-Laws referring to the election of the Council. Mr. H. Beadnell Gill will move that Bye-Law 8 be altered by adding after "nine members" the words "and all members elected to the Council after the first two years shall be elected to serve for three years, and on the expiration of his third year of office each member so elected shall retire from the Council, but shall be eligible for re-election." In Bye-Law 15, after "two years" to add the words "at least."

The President, Mr. J. DENNANT, will deliver his Inaugural Address.

Mr. S. J. HUTCHINSON, M.R.C.S., L.D.S., will read a paper "On the Constitutional Effects of retarded Eruption of the Wisdom Teeth."

Casual communications, and any other business. The Hon. Sec. will be glad to hear from members who wish to bring forward other subjects or business.

6.30—Dinner (at the Pavilion); price 7/6, *without wine*.

Eastern Counties Branch.

THE Annual General Meeting will be held in the Anatomy and Physiology Lecture Room of the New Museums, Cambridge, on Wednesday, June 22nd, the President, Mr. G. Cunningham, in the chair.

Programme.

9.30 a.m.—Meeting of the Council.

10 to 11 a.m.—Annual Business Meeting.

11 a.m. to 1 p.m.—Presidential Address and Communications: "Fusible Metal," showing its uses in Operative and Mechanical Dentistry, by R. P. Lennox; "Exhibition and Demonstration of 'Vitrumite' as an adjunct to Æsthetic Dentistry," by G. Cunningham; "A Case of Irregularity," the patient being introduced by W. A. Rhodes, in which, extractions being necessary, S. A. T. Coxon will demonstrate with his apparatus for prolonging the anæsthetic effect of nitrous oxide.

Casual Communications.

1 p.m.—Adjournment for Luncheon at Merton Hall, the residence of the President.

2.45 p.m.—A Conference, open to ladies and visitors, under the presidency of Sir James Crichton Browne, F.R.S., &c., on (a) The paramount importance of dental hygiene and conservative dentistry during the period of school life; and (b) The best means of securing their general application.

The President of the Branch will open the discussion, in which several members of the University and others, interested in school hygiene, have promised to take part.

7.15 p.m.—Annual Dinner, in the Hall of Downing College. Price £1, including wines, coffee, and cigars.

Those who intend being present at the meeting or dinner will oblige by giving notice of their intention, as early as possible, to

W. A. RHODES, *Hon. Sec.*

53, *Trumpington Street,*
Cambridge.

ORIGINAL COMMUNICATION.

Sponge Grafting.*

By GEO. BRUNTON, Leeds.

THE filling of root canals under ordinary conditions is a difficult and tedious operation, but when a root is required to be filled the apex of which is absorbed or the side perforated, the probability of filling and preserving such a root is small; because any substance which we may use for filling the canal will, if pushed through the apex or perforation, produce so much irritation that the extraction of the root is the only remedy left. The use of the sponge-graft in such cases has enabled me to preserve to the patient roots which would otherwise have been lost.

To make a sponge-graft I proceed as follows:—After cleaning out all nerve débris, etc., push a small piece of sterilized sponge up to and *through* the apex. You must be *sure* that the sponge goes through, because if it does not, you make no graft. On emerging through the apex, the sponge will spread out and fill the absorbed cup-shaped space; fibrous tissues will run into the

* Read at the Annual Meeting of the Midland Counties Branch, held at Huddersfield, May 20, 1892.

sponge and a healthy graft will result and the filling of the canal may be proceeded with in the ordinary way, either immediately or at a subsequent appointment.

In some cases we are obliged to destroy and remove the pulp in teeth, the roots of which are not complete. I have treated such teeth exactly as if the root had been absorbed, and the result has proved the correctness of the treatment.

From my experience so far with this method of treatment, I am inclined to hope that many roots will now be saved and made useful. I am sorry that there is not, as yet, one failure to record, for all methods are, like men, fallable, and the record of a failure often lets in daylight, and shows where we may improve.

I have also used the sponge-graft in a tooth socket after extraction. Ten cases of absorbed roots have been treated, two cases of perforation through the side, and two cases of incomplete development. I will only give particulars of one case in each class.

Case No. 1, September, 1888.—Miss B., age 35, extremely nervous lady, upper left lateral and canine much decayed, pustule over each root, considerable bleeding, after removing dead pulps found ends of both roots absorbed, cut down decayed crowns, cleaned out and sterilized canals and inserted sponge-graft, sealed up root canals with cement, took model, fitted gold collars to roots. At second visit removed two-thirds of cement from canals, adjusted mineral crowns to roots and fixed them in position with cement. Considerable pressure had to be used to drive the crowns home, which caused some pain. In less than a week all tenderness had subsided, and in three weeks the pustules on the gum had gone.

Case No. 2, April, 1892.—Mr. C., age 40, root of upper right first bicuspid perforated on the lingual side by decay: bleeding difficult to control, plugged perforation with pledget of cotton wool saturated in chloralum, prepared root canal and filled upper third, then inserted sponge-graft and finished lower two-thirds of canal with the usual gutta-percha point. This case has done remarkably well, not the least tenderness and no mark on the gums.

Case No. 3, May 3rd, 1892.—Master C. P., aged 8, lower left six-year molar much decayed, pulp putrid, ends of roots incomplete, root canals cleaned and enlarged with drill mopped with perchloride of mercury, 1 in 100, sponge-graft inserted, canals filled with gutta-percha points and very large amalgam filling in crown at one sitting.

Case No. 4.—Mr. F. L., age about 26, upper right second bicuspid extracted, patient returned three days after complaining of trouble from the socket, prescribed syringing with Condyl's fluid, after a fortnight's treatment found no granulation in socket, cut and trimmed a piece of sterilized sponge to somewhat the form and size of extracted root, wiped out socket with weak phenate of soda, inserted sponge and sent patient home cured.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odontological Society of Great Britain.

THE ordinary Monthly Meeting of this Society was held in the Society's Rooms, 40, Leicester Square, on June 13th, Mr. J. HOWARD MUMMERY, M.R.C.S., L.D.S., President, in the chair. There was a good attendance of members and several visitors.

The PRESIDENT, on taking the chair, mentioned with regret the death of a former President and Librarian of the Society, Mr. Felix Weiss, and also that of Mr. Fothergill, a member of the Society.

Mr. PEARCE GOULD narrated a case of fracture of neck of the lower jaw. The patient, a female aged 30, fractured the neck of the right condyle of the lower jaw as a result of being pitched out of a dogcart and falling upon her chin. There was pain and inability to close the teeth, and she came to the hospital the day after the accident, when she was found to have a deep cut across the chin, severing the lower lip, and a swelling over the right side of the face. The parts were very tender, and the patient complained of hearing a "click" when the jaw was moved. The displacement of the jaw was easily reduced and the fragments maintained in position by a jaw splint and four-tailed bandage. These were worn for three weeks; some thickening was present for a time, but eventually disappeared.

Mr. PATERSON had seen a case in which a fracture had occurred high up behind the canine, which had been treated satisfactorily up to a certain point with a four-tailed bandage, with a chin piece and wool pad over the condyle.

Mr. SMITH TURNER was glad to see the four-tailed bandage still used.

Mr. BETTS narrated a case in which he believed a similar fracture had been overlooked.

Mr. PEARCE GOULD then described a method of treating periosteal and dentigerous cysts. The methods of treating cysts had, he said, been improved of recent years, and he ventured to think that the same improvement could be introduced into the treatment of perios-

teal and dentigerous cysts. The older plans were tapping, injection of iodine, perchloride of iron, carbolic acid and other irritating fluids; by incision and stuffing the cavity with lint either plain or soaked in a strong solution of chloride of zinc; by incision and drainage. He preferred *excision* of the cyst to all other methods as being certain and speedy, and thus saving the patient much time and distress. Mr. Gould therefore suggested that the measure of excision should be adopted for periosteal and dentigerous cysts, and cited a successful case in which his idea had been put into practice.

Mr. PATERSON said that the use of chromic acid painted over the cyst set up violent inflammation, but eventually caused the cyst wall to come away. He deprecated the use of strips of lint for packing, the patients were very prone to leave them in the cyst.

Mr. C. C. ROBBINS had recently met with a patient, aged 60, with a large fibrous cyst connected with the lower canine, which, although it was incised and subsequently packed with carbolic lint, had not healed. Eventually Mr. Heath removed the cyst and the patient was cured.

Mr. HERN asked, in cases of periosteal cysts, after enlarging and stuffing with lint, whether it would be feasible to perform the operation of enucleating the wall.

Mr. S. J. HUTCHINSON said at a previous meeting Mr. R. H. Woodhouse, speaking to a paper read by Mr. David Hepburn, and dealing with anterior protrusion, had referred to cases of this nature occurring in the adult, and as Mr. Hutchinson had come across a typical case occurring in a patient aged 38 he thought the models would be of interest to the Society. The protrusion had only been noticed for six or at most twelve months.

Mr. SMITH TURNER described some teeth and jaws belonging to the Guanches, and brought by him from the Canary Islands. The specimens dated before 1474, when the Spaniards seized the Canaries and exterminated the Guanches. The lower maxillæ exhibited had evidently been stripped of some of their teeth by persons who, in the old days, were in the habit of snatching teeth from corpses in burial grounds and battle fields, to supply dentists with natural teeth, then used in the preparation of cases. The masticating surfaces of the teeth were in most instances found to be ground smooth by the rough nature of the food. They evinced sundry marks of decay, both dental caries and alveolar abscess being commonly present. The better classes appeared to have been mummified, and in one very perfect skeleton, Mr. Smith Turner had observed that on each side of the lower maxilla the wisdom tooth had been erupted transversely, impinging upon the twelve-year-old molar, which in its turn was affected with caries. Out of a large number of loose teeth picked up, the greater proportion showed either caries, exostosis or other dental disease. Specimens of gemmation; thickening on healthy bone

caused apparently by inflammation following the impaction of a wisdom tooth, and instances of *fragilitas ossium* were all found.

Mr. DAVID HEPBURN exhibited a useful instrument for measuring the depth of the canal leading into an antrum after puncture. It consisted of a probe-like instrument, which, when introduced into the untrum, allowed two little horns to fly out; the instrument then being gently lowered, these horns gave the upper limit to the canal resting upon the mucous membrane, a simple contrivance adjusted below marked the lower limit; the horns were then withdrawn and the instrument removed.

Mr. VAN DER PANT described a case of antral disease.

Mr. CANTON showed the model of a mouth with an unusually large left central incisor, which he thought was not due to gemmation.

Dr. RÖDER (Budapest) showed an instrument designed for use as an elevator.

Dr. HEWITT read a paper on the "Anæsthetic Effects of Nitrous Oxide administered with Oxygen at ordinary Atmospheric Pressure." He said that the ordinary symptoms shown by the person anæsthetised by nitrous oxide were stertor or noisy breathing, jactitation or involuntary muscular movements, and lividity or duskiness. Unless these were present a good anæsthesia could not be ensured. When a certain proportion of oxygen was mixed they did not appear. He thought these phenomena were not part and parcel of the anæsthesia, but arose from deprivation of air. Stertor and lividity alarmed the friends of patients, jactitation gave rise to inconvenience, especially in children. Dr. Hewitt described the history of the use of this mixture from its first trial by Paul Bert. He then described the various forms of apparatus which had been employed. His own consisted roughly of two bags, one to hold the oxygen, the other the nitrous oxide, which led into a specially-contrived outlet admitting a more or less exact percentage of the gases to enter the face piece. The method of employment was to start with a low percentage of oxygen, and add nitrous oxide as it was required. Every case required special care in the graduation of the quantity employed. The symptoms shown under this mixture were—the respiration was at first quickened and rendered more deep, subsequently became almost as in sleep: no change of colour occurred: the circulation was not so hurried as with nitrous oxide: the pupils were not dilated: the muscular system was relaxed: jactitation and stertor were absent. Analysis of 153 cases—123 female, 29 male, 1, sex not stated: age varying from 7 to 61. Of these, 117 were regarded as typical cases, 36 evincing some symptoms of nitrous oxide narcosis, *e.g.*, rigidity, jactitation, &c. Signs of anæsthesia: conjunctival, reflex, abolished muscular relaxation, soft snoring breathing, fixation of eyes. Period of inhalation: 110 seconds. Available period of anæsthesia: 44 seconds. Average number of teeth extracted: 2.7.

General Remarks.—In some cases it was necessary to have a large percentage of nitrous oxide, as much oxygen produced excitement and muscular movement, especially in strong vigorous people. Children and feeble—especially anæmic—people took the mixture well, and he regarded it as being of peculiar value in such cases.

Dr. Hewitt then instituted a comparison between the mixture of nitrous oxide alone and with ether in cases in which he had given them to the same patient at different times, the results telling, he thought, in favour of the mixture. Where the air way was partly closed by enlarged tonsils or what not, the mixture was preferable, as it did not cause so much swelling of the tongue or tonsils. It was also useful for persons with weak hearts. After-effects were not so satisfactory as with nitrous oxide, the patient remaining dazed for some time after the administration, while retchings and nausea were more liable to occur than with gas. He thought the mixture most useful for children and young persons of both sexes, for the anæmic and debilitated, for those who are "bad subjects" for nitrous oxide, for persons experiencing bad dreams under gas, for the aged, for persons suffering from visceral affections. The objections to its use were the great difficulty in manipulating the apparatus, the greater amount of preparation required, the unsightliness of the apparatus, and the length of time of inducing and recovering from the anæsthesia.

Mr. BAILEY, after complimenting Dr. Hewitt on his paper, criticised his strictures upon the use of nitrous oxide. He did not think the drawbacks to gas need be so pronounced as had been represented, and he felt that the employment of the mixture with the apparatus as at present used was hardly free from objection. The length of time the patient was in going off would to nervous persons prove a great trial.

Mr. ROWELL dwelt upon the merits of Dr. Hewitt's work.

Mr. LLOYD thought, in spite of what Dr. Hewitt had said, it must be difficult to determine when the patient was narcotised by the mixture.

Mr. R. H. WOODHOUSE felt, in justice to Dr. Hewitt, it should be mentioned that most of the extractions mentioned in the paper were performed by the hospital students. He had remarked that headache not infrequently followed the employment of the mixture.

Drs. DUDLEY BUXTON and SILK, and Messrs. HERN and TROLLOPE having spoken, Dr. HEWITT replied, and the meeting closed.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Osseous Union of Two Teeth.

BY A. LUCADOU WELLS.

DENTIST TO THE LAUNCESTON GENERAL HOSPITAL, TASMANIA.

As the following case of "osseous union" of two teeth seems to present some points of interest, notably, as I think, it may be traced to an accident which occurred in early life, I have ventured to send you an account of it for publication should you think fit, with rough cast of the specimen, and an explanation of the hypothesis upon which is based the suggestion as to probable cause. The patient, a healthy-looking married woman of about six, or seven-and-twenty, was placed under chloroform for the purpose of having a number of badly decayed teeth removed. Upon attempting the extraction of the second upper left molar, the crown of which was greatly hollowed out by caries, an unusual amount of resistance was met with, so much so that the forceps used (ordinary molar forceps) had to be laid aside, and a stronger instrument selected, with which, after some difficulty, and the application of considerable force, the tooth was loosened, but not completely dislocated, first by steady outward pressure, afterwards by partial rotation and force directed downwards and backwards. At this stage of the operation a bulging and tension of the gum immediately above the tooth was noticed, and it was then found that the outer alveolar wall was fractured. Judging from this that there was something abnormal about the roots—either wide-spreading or enlargement from hyperostosis—in order to avoid tearing or laceration of the gum and soft tissues I separated these from the neck with a lancet and placing the fingers of the left hand upon the fracture to compress, support and steady the parts, completed the operation without further trouble. (There was a good deal of hæmorrhage from the socket, but it did not continue very long). I then discovered the case to be one of "gemmation"* or "osseous union" of the two last molars.

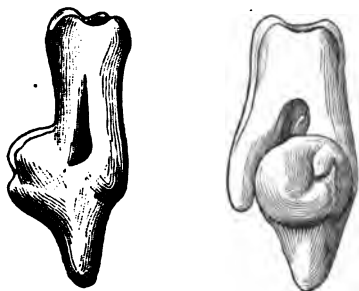
It may be well to observe here that when examining the case previous to operating, nothing uncommon in form or position of any of the teeth was observable, the left second molar offering the usual presentation; the only thing unusual was the absence of the wisdom tooth on the left side, but this circumstance was not

* See Tomes, "Dental Surgery," 1st edition, p. 244.

thought much of, these teeth occasionally being suppressed until beyond the age of this person.

Further, the second and third molars on the right side of the jaw were extracted and found perfectly normal in position and number, and with well-developed fangs.

In the specimen before me the greater part of the posterior buccal root of the second molar is united to, and has the appearance of being fused round and into the crown and neck of, the third molar, while the apex of its anterior buccal fang is connected with that of the wisdom. The palatine root of the second molars is quite free with the exception of one very weak point of connection between its posterior surface near the apex, and the neck of the



third molar. The size of the latter is almost normal, but its direction and position in the jaw appears to have been somewhat changed. The mother of the patient, who accompanied her, upon being questioned at the conclusion of the operation, stated that her daughter, when a child of about the age of eight years, "was kicked by a horse on the *left* side of the face, when some of her teeth were knocked out." Is it improbable that the concussion from such a blow might have produced a result similar to that exhibited in the specimen under consideration?

From the appearance of these coalesced teeth, it would seem as if (at the time of the accident the teeth being driven upwards in the jaw), the posterior buccal root of the second molar had been forced upwards and slightly backwards, and against the dentinal pulp of the developing wisdom tooth, just missing the enamel organ, and in such a manner as to cause the crown of the third molar to face backwards. It appears to have done this without injuring any of the formative organs, and as, from the history of

the case gathered from the mother, no serious pathological disturbance resulted, doubtless natural growth and development continued, with the result that the parts in contact became "fused" together, or "coalesced," afterwards calcifying, the development of the roots of the second molar progressing in a natural direction, and the root of the third molar in its natural direction, supposing the tooth to be in a normal position in the jaw. Afterwards exostosis appears to have attacked the second molar, probably caused by the presence of advanced caries, followed by inflammation of the pulp and periodontal membrane. Upon excavating the debris from the diseased cavity, and freely opening up the pulp chamber, a finely-pointed nerve instrument could be easily passed along the canal of the palatine root nearly to its apical foramen, or to where the bony union with the wisdom tooth had taken place; the same instrument, however, could only be made to traverse the canal of the anterior buccal root for about one-third of its length, and opposite to where hyperostosis of the fang had commenced. Within the canal of this root nodules of dentine had formed, due, probably, to inflammatory irritation. The passage in the posterior buccal root was completely sealed up with calcareous deposits.

I have seen the case several times since the operation. The mouth healed nicely without treatment beyond the occasional use of a gargle composed of Tinct. Krameria ʒj., Eau de Cologne ʒj., and Aqua Rosæ ad ʒvij., and no trouble was experienced through the fractured alveolus. The patient has for some time been wearing with comfort an upper denture carrying artificial substitutes for the teeth removed.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Primary Dentition in its Relation to Rickets.

BY GEORGE CARPENTER, M.D.LOND., M.R.C.P.

PHYSICIAN TO THE OUT-PATIENTS, EVELINA HOSPITAL FOR CHILDREN,
AND

R. DENISON PEDLEY, L.D.S., F.R.C.S. EDIN.

DENTAL SURGEON TO THE EVELINA HOSPITAL FOR SICK CHILDREN.

THERE is a widespread belief among medical men that the temporary teeth are materially affected in children who are rickety, and as the result of this disorder. In support of this contention extracts from some of the text-books dealing with this disease are given. Thus, one writer says: "Dentition is late and irregular. . . . The teeth

themselves are imperfectly formed, their enamel is defective ; in a year or two they turn black and break off or fall out.* Another writes : "Dentition is much delayed in rickets. . . . the enamel of rachitic teeth is bad, rocky, or pitted in its disposition, the teeth are notched or have horizontal ridges, and break away down to the gum, where they appear as black jagged stumps. These conditions are not peculiar to rickets."† Another remarks : "Dentition is much delayed and the teeth when cut are deficient in dental enamel, so that they decay rapidly."‡ Another says : "The teeth are late in appearing ; the teeth, moreover, are specially apt to decay and become loose."§ Another observes : "The teeth appear very late. . . . while they also rapidly decay or fall out, being deficient in enamel."|| Others again state that modifications of dentition vary according to the period at which the active phase of rickets becomes manifest. If it be early, there are three ways in which the modifications may occur : 1. The teeth are late in their eruption. 2. The teeth are cut cross—that is, they appear in wrong order. 3. They soon become carious, and are often shed early.¶ In our practice the correctness of these views, in their entirety, has for some time been held in doubt, and with the object of bringing them to the test we have made more careful and extended observations on this subject. For this purpose we have examined the mouths of some 500 children with obvious rickets, and find, as we anticipated, the results are not confirmatory of the prevalent ideas on this subject. Briefly tabulated, these results are as follows : *A.* In the vast majority of patients the teeth are perfect in structure. There is no deficiency of enamel. The teeth do not become loose, and rapidly fall out. There is no special proneness to decay. *B.* In those rare cases where the teeth have been found defective a history of inherited syphilis has been obtained. *C.* Dentition is undoubtedly delayed.

The result we have obtained under the heading *C* is then quite in accord with the writers we have quoted, as also with the prevalent opinion, whilst widely differing from them in other respects. Bland Sutton has made the suggestion that the delay is caused by "abnormal thickness of the follicles."** By the end of the seventeenth week of foetal life the dentine is in process of calcification, and about the same time a deposit of enamel commences in the enamel organ. From this time forward the process is a continuous one, so that at birth parts of the crown of the teeth are fully formed, and the course is complete, as regards the crowns, between the third or fourth month after birth. It is still then a doubtful point whether the enamel has received its full impregnation of salts. Of late years it has been recognised by various observers that rickets may commence in utero, and in such instances as these some modifications in structure of the upper parts of the

* Fagge, third edition, vol. ii., p. 736-7.

† Goodhart, fourth edition, p. 646.

‡ Quain's "Dictionary of Medicine," article Rickets (Eustace Smith), p. 1373.

§ Bristowe, seventh edition, p. 930.

|| Roberts, seventh edition, p. 285.

¶ Keating's "Encyclopædia," Diseases of Children, article Rickets ; Barlow and Berry, vol. ii., p. 226.

** *Odontological Society's Transactions*, 1889.

crowns of the teeth might be looked for, as is the case in congenital syphilis. Again, the presence of this disorder at birth, soon after, and up to the third or fourth month, should, on an assumption, bring about some defect of the lower portions of the crowns of the teeth (*i.e.*, near the neck). Following Kassowitz, the earliest indications of rickets are either trifling beading of the rib costo-chondral junctions, or cranio-tabes, or a combination of these. He considers that at least 80 per cent. of children in Vienna under three years of age are rickety. On the question of some trifling beading of the ribs amongst the children of the London poor, we should be prepared to go much further than he does, and say that in a very large out-patient experience we have never yet failed to make out some very slight bossing in this situation in the youngest infants; and that, if this is to be taken as sufficient evidence of rickets, then the disease is nearly ever present in the out-patient room to some extent. A very large number of children must, therefore, be slightly rachitic during the period of the formation of the enamel of the lower half of the crowns of the teeth—*i.e.*, the cervical part.

On the question of cranio-tabes, however, we hold somewhat different views, and consider that congenital syphilis is largely responsible for this condition of affairs.* Moreover, in comparison with the beads on the ribs, it is of infrequent occurrence. Given, then, that this beading of the ribs, to however slight an extent present, and seeing also how prevalent this condition is in the out-patient, it would have been expected, if rickets is such a potent factor as the text-books state, that some dental alteration in the shape of enamel scarring would have been detected in a considerable proportion of these cases, yet the contrary has been our experience. We have over and over again watched the teeth-cutting in obviously rickety children—children who have been attending as out-patients for weeks—yet our observations have not been rewarded by the eruption of pitted and defective enamel: on the contrary, it has appeared to be quite perfect.

It must not be inferred that because a history of syphilis has been observed we consider such teeth syphilitic. Whilst not holding with Parrot that rickets is a syphilitic manifestation, yet in our experience, as doubtless in that of many others, the syphilitic cachexia is when present a very powerful agent in the production of rickets. In a large number of rickety children a syphilitic history can be obtained if inquired for,† and the observer is not infrequently startled by the appearance in some such cases of a slight syphilitic rash on the buttocks, anal condylomata, a specific ulcer in the mouth, eye trouble, or what not, in a child who, for all the signs that were present at the time of the first examination, would otherwise have passed as rickety merely. These signs showed that the disease was smouldering on, and that the syphilitic cachexia was underlying the rickety trouble. On this account, therefore, we cannot attach that importance to the heading *B* which we might otherwise have done. What we do say, however, is that it is not proven that rickets is responsible for all the

* "Cranio-tabes in Young Children: a Clinical Inquiry into its Origin. Illustrated by 100 Cases." By George Carpenter, M.D. (St. Thomas's Hospital Reports, vol. xix., pp. 234 *et seq.*).

† St. Thomas's Hospital Reports, vol. xix., p. 341.

dental troubles that have been laid to its charge ; that the association of rickets with carious teeth as between cause and effect is merely an assumption ; and that caries does not take place in any case in rickety children to anything like the extent the text-books would lead us to infer. What is wanted is some more extended and definite observations on this interesting point, and not statements which go the round of the various medical books in somewhat different dress, quite unchallenged and accepted as truisms.—*The Lancet*.

OBITUARY.

George Benjamin Pearman, L.D.S.Eng.

WE regret to announce the sudden and untimely death of Mr. George Benjamin Pearman, L.D.S.Eng., a most esteemed and skilful member of our profession. Born in Chelsea on the 7th August, 1846, he became a pupil of the late Mr. Ollive, and subsequently of Mr. P. Smith. On completing his indentures he went as assistant to Mr. Bullen, of Chester, with whom he remained till 1873, when he returned to London to take up the hospital curriculum. He became a student of the Dental Hospital, Leicester Square, and of the Middlesex Hospital, and fully qualified in 1875, since which date till October, 1891 (when he retired), he practised, in partnership with Mr. F. Youngman, at Torquay. On the 26th May last it was necessary for him to submit to a serious operation for hydronephrosis, from the effects of which he succumbed on the morning of the following day.

Alexander Fothergill, L.D.S.Eng.

MR. ALEXANDER FOTHERGILL, whose death occurred on May 27th, has only just retired from the presidency of the Midland Counties Branch. He was the son of John Fothergill, one of the earliest railway surgeons. After leaving school he became a pupil of his brother, Mr. William Fothergill, dentist, of Northgate, with whom he subsequently became a partner, the partnership continuing over a period of forty-five years.

Mr. Fothergill joined the movement for a College of Dentists, and subsequently the Odontological Society, qualifying in 1868. He has always taken a keen interest in the progress of the profession, has been a member of the Association since its formation, and only retired from active practice during last year. At the time of his death he was in his sixty-ninth year.

Mr. Fothergill succumbed to an embolism after a brief illness of two hours only, and this number of the ASSOCIATION JOURNAL contains on one page the valedictory address which he delivered to the Midland Branch a few days ago, and on another the present notice of his death.

Felix Weiss, L.D.S.

IN Mr. Felix Weiss the profession will lose not only a genial friend but one of those early pioneers of dental reform, the result of whose labours we now enjoy. Mr. Weiss was an active member of the College of Dentists, and held by Mr. Rymer in his efforts to maintain the existence of that body after the secession of the bulk of its members. Mr. Weiss has written a great deal on dental subjects, and has served the Odontological Society in the capacities of secretary, librarian and president. He was recently appointed Vice-president of the Representative Board of the British Dental Association. Mr. Weiss was 70 years of age, and had for some time relinquished active professional work, but his interest in dental reform and progress never flagged, and was as conspicuous in the last years of his long and honoured life as in its commencement.

MICROSCOPICAL AND LABORATORY GOSSIP.

MANGANINE is the name of a new alloy, consisting of copper, nickel, and manganese, which has been brought on the market, says *Iron*, by the German firm, Abler, Haas and Angerstein, as a material of great resisting power. The specific resistance of manganine is given as forty-two microhm centimeters, that is, higher than that of nickeline, which has hitherto passed as the best resisting metal. Another advantage of manganine is its behaviour under variations of heat, the resistance, it is claimed, being affected only in a minute degree by high temperatures. It is, therefore, adapted for the manufacture of measuring instruments and electrical apparatus in general, which are required to vary their resistance as little as possible under different degrees of heat. A further interesting fact is that, while other metals increase their resistance by the raising of the temperature, that of manganine is diminished.

FROM the *Ohio Journal* we learn a very large skeleton of an extinct animal, belonging to the order of Mastodon gigantians, has recently been found near Hegate, Canada, the measurement from the ends of the nostrils to the tip of the tail being twenty-two feet. Quite recently, a tooth belonging to one of this class was discovered, and was found to weigh fourteen pounds twelve ounces, and it is computed that the skeleton of the animal must have measured at least thirty feet.

CLEAR AGAR-AGAR CULTURE MEDIUM.—Every worker knows how difficult it is to obtain a clear solid medium when agar-agar is used as solidifying agent, and every one knows also that some-

times it is darker and more cloudy than at others, although precisely the same method was used, the agar being of a different origin. It frequently happens that with the best care and the best filtration, even when albumen of egg is used, the medium remains too dark or, at least, far from satisfactory, so far as transparency is concerned. This, I am sure, often comes from dirt in the agar used. I have not experimented extensively with the following simple precautionary measure, but two or three recent trials make me believe that the medium can usually be much improved by it. It is this: cut the agar-agar fine with scissors, put in a large flask (or measuring glass), add a large amount of warm water, and shake violently. Pour off this water and add a fresh quantity, shake again and pour off as before. Repeat the operation three or four times, always being careful to allow the agar to settle before decanting. Sometimes better results are obtained by leaving the agar in the third water, say about an hour or two, and then shaking and decanting. A cotton cloth may be used to filter the water off the agar-agar thus washed. In a word, it means a thorough rinsing of the agar before heating or melting it in any way.—*Bacteriological World*.

THE REMOVAL OF ANILINE STAINS.—Those interested in microscopy will be pleased to hear that a most effective remedy for the removal of these stains from the skin may be found in the successive use of a 5 per cent. solution of sodium chloride, peroxide of hydrogen, and lastly, alcohol.

TO RELIEVE PAIN AFTER EXTRACTION.—When pain continues immediately after the extraction of a tooth great relief is often afforded by placing in the socket a pellet of cotton moistened with equal parts of chloroform and tincture of aconite. A mixture of one drachm of camphor with two of chloroform, applied on a pellet of cotton to the socket, will likewise afford relief. When the pain continues for several days, as it sometimes will, the following, applied to the socket and to the gums, will afford relief:

R _j	Morphinæ ...	...	gr. vj.
	Tincturæ aconiti ...	}	aa f. oz. j. M.
	Chloroformi ...		
	Alcoholis ...		

—*Ohio Journal*.

AN AGREEABLE BICHLORIDE SOLUTION.—The disagreeable taste of bichloride solution, which is well known to all, may be overcome by using with it a certain amount of rose water. Dr. G. P. Allan, who recommends this, takes one part of an ordinary 1 per cent. solution of the mercury, and adds to it

nine parts of rose water, thus making the solution up to one in a thousand.

FILLING DECIDUOUS TEETH.—For filling deciduous teeth, S. E. Gilbert in the *Cosmos* recommends a mixture of phosphate of zinc and chloro-percha, used in the following way: the zinc-phosphate is mixed very thin, and to this is added the chloro-percha, and during the mixing, powder of the zinc phosphate is added to make the mass of putty-like consistency. The cavity is then dried and the filling packed in immediately. The mixture is said to be very useful in those cases where it is impossible to exclude saliva, it having been found that in cavities thus filled, the material on removal was adherent to the walls of the cavity, and the writer stating that some of the fillings have lasted over a year and still show no signs of wear.

The following formula is said by Dr. Van Woert in the *International Dental Journal* to make a good root filling, viz:—

Iodol ...	...	...	...	gr. x
Tinct. Iodi ...	...	...	...	gr. xx
Ol. cimamomi	...	...	...	ʒ 8
Vaseline carbol	...	...	...	q.s.

Mixed at a temperature of 140° F. to form a stiff paste. For using, the paste is rolled into shape like gutta-percha points, and inserted into the canals in a similar manner.

ANNOTATIONS.

It has been found necessary to make some special arrangements with reference to the altered date of the Annual Meeting of the Association in August. It has hitherto been our practice to present our readers with the latest arrangements for the meeting in our August number. This year the final announcements must appear in July and that issue will consequently appear somewhat later than usual. The August number will contain the presidential addresses, and a brief abstract of the events of the meeting.

HEMORRHAGE FOLLOWING REMOVAL OF THE TONSIL.—An interesting case of severe hæmorrhage following excision of the tonsil was recently reported at the Clinical Society of London by Mr. Arbuthnot Lane. A man, aged 21, had his tonsil removed on December 16th, this operation being followed by profuse bleeding, which recurred on both December 19th and 20th, and which, in spite of local applications, steadily continued. On December 22nd, when first seen by Mr. Lane, he was evidently

dying, and in such a collapsed condition that salt solution was freely injected before attempting to operate. The injection produced marked reaction, and Mr. Lane tied the common carotid artery with the result that the patient completely recovered.

MR. MARK HOVELL, in a recent issue of the *British Medical Journal*, referring to a similar case in which severe hæmorrhage followed tonsillotomy, found he was able to speedily arrest the bleeding by taking one part of gallic acid with three parts of tannic, adding a little water to knead the mixture into a stiff paste. This was rolled into a ball about the size of a marble and rubbed firmly into the bleeding surface, counterpressure being made outside with the opposite hand. Mr. Hovell states that he has found the same treatment very successful in similar cases he has met with.

WE are pleased to see that Mr. Charles Sims, who for some years has held the post of Lecturer on Dental Surgery at Queen's College, Birmingham, has been the recipient of a present on his retirement from that post. The presentation was made by Mr. Humphreys, who in the course of his remarks referred to the long connection of Mr. Sims with both the College and Hospital. The gift was a gold watch, having inscribed upon the inner plate the following: "Presented to Charles Sims, Esq., L.D.S.Eng., by present and past Students and his Colleagues at Queen's College, on his retirement from the chair of Dental Surgery, April 13th, 1892."

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the May sittings of the Dental Board the following candidates passed the First Examination for the dental licence:—Ezekiel Agnew (Glasgow), Charles H. Carrington (Manchester), Thomas Duncan (Glasgow), Andrew M. McCash (Glasgow) and James Summers (Glasgow). Two candidates were referred. At the Final Examination, Wm. D. Anderson (Glasgow) passed in the dental subjects, and will receive his diploma when he is qualified in medicine and surgery.

THE grievances of the plucked student—his wrongs and his merits, the injustice, caprice and malice of examiners—are familiar to us all. Who does not remember a time when he half believed, if he did not actually utter, fearful accusations against those monsters who, destitute of every moral sense, sit wreaking revenge on youths they have never seen or heard of before, and torturing and smothering too out-spoken genius without remorse. While all this

was only foolish chatter of boys whose vanity was sadly hurt and who tried desperately hard to explain away unpalatable and humiliating facts, we have all smiled and sympathised, but who can sympathise with such things in print? We are sorry and ashamed that dental students should have actually published a letter of such a character as appeared in the *British Medical Journal* of last week; it matters not what school they belong to, all dental students must share in the disgrace, and the rest of the medical student world have a just cause for laughing at us. It is a great pity that some graver head was not at hand to advise the students, for though the episode has its funny side, it has its sad side also.

THE Edinburgh Dental Hospital and School having been registered by the Board of Trade, will in future be known as "The Incorporated Edinburgh Dental Hospital and School." As the premises at present occupied by the Hospital are required for the Royal Infirmary extension, the directors of the hospital find it necessary to build a hospital and school. They appeal to the profession in general, and to Scotsmen in particular, for funds. Subscriptions and donations will be received by the Hon. Treasurer, Thomas Wallace, Esq., 5, Lauriston Lane, Edinburgh, or by the Dean, W. Bowman Macleod. We have just received a prospectus of the new scheme, but too late to give an adequate notice in the present number, which is already over full; we hope to say more next month. The prospectus is clear, and the names of the directors read like a list of all one's old friends in Edinburgh more than a staff of directors.

APPOINTMENT.

FREDERICK TURNBULL, L.D.S., has been appointed Tutorial Dental Surgeon to the Dental Hospital of Edinburgh, *vice* Herbert B. Ezard, L.D.S., resigned.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Bedford Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 7.

JULY 30, 1892.

VOL. XIII.

The Annual Meeting.

THE present number of the Journal has been delayed, as we announced last month that it would be, in order that we might lay before our readers the latest details concerning the good things that are being made ready for them at Manchester. The programme speaks for itself, and shows at a glance that this meeting, like all its predecessors, will afford abundant opportunities for the wholesome interchange of views upon professional matters of great interest, which is necessarily one of the chief features of our annual gatherings. Our Association, limited though its numbers be, and limited though they must remain, is nevertheless an important body doing important work, and this importance, and the success that has so constantly attended its efforts, is due in no small degree to the fact that although its members represent many shades of opinion on scientific and practical matters, there cannot exist among us any diversity of interests; in the advancement of the profession and the cultivation of a true professional spirit, we have

one common end and aim for which we are all working as far as in us lies.

The hospitality of Manchester is, we believe, proverbial, and may well be trusted to maintain the traditions of past annual meetings. Science will not certainly be neglected, as may be seen from the projected microscopical treat, about which we publish some details at another page; a second report on the investigation of the teeth of school children will afford another opportunity for noting the progress that has been made in this direction, a progress of which we think the promoters of the scheme, and the Association generally may be reasonably proud. Anæsthetics will once more claim our attention, and seeing that our profession is as much, if not more than any other, indebted to anæsthesia, the interest felt in this topic will, we are sure, not be likely to flag. The Museum promises to be unusually large and interesting. It has been specially arranged to illustrate the discussion of Friday on the vexed question of the removal of the six-year old molars. This is a question of pressing practical value, a question of almost daily occurrence, and one upon which almost everyone will have something to say. The tube specimens already amount to 1,200 and there are 35 cases of models (each containing about 30) and these do not represent more than a proportion of what will be collected eventually. On the whole the museum and discussion together cannot fail to be of some real practical value to science, and will possibly prove the event of the year.

The demonstration list is very full and particularly strong, and here more and more every year the most widespread interest prevails among an association of practical men; possibly nothing in the whole programme is looked forward to with so much general expectation or followed with more accurate attention.

We must congratulate Mr. Quinby upon the dignified surroundings amongst which he will enter upon his year of office. Owens College is a spot where odontology may always, if names have any value, be sure of a welcome, and we doubt whether any more appropriate place could have been chosen for a dental gathering, if we even had had the whole world to choose from. We need hardly recommend the programme to the careful perusal of all our members who intend to be present, but we may as well warn them not to expect their August numbers of the *Journal* until some days after the meeting. And now we bid our readers *au revoir*, and trust that all will go well with them until we are compelled regretfully to sing "Farewell Manchester."

ASSOCIATION INTELLIGENCE.

The Annual General Meeting

of the Association will be held at the Owens College, Oxford Street, Manchester, on Thursday, Friday and Saturday, August 11th, 12th and 13th, 1892.

The following will be the order of the proceedings :—

Wednesday, August 10th.

The Evening before the Meeting—The Mayor and Mayoress of Manchester (Mr. and Mrs. Bosdin L. Leech) will hold a reception at the Town Hall to welcome Members and Ladies to the City, at 8.30 p.m.

Thursday, August 11th.

9.30 a.m.—Meeting of the Representative Board in the Council Chamber of Owens College.

11 a.m.—The Annual General Meeting for business (open to Members only) will assemble in the Chemical Theatre of Owens College.

12 noon.—*The Meeting will be open to Visitors*, and the President, Mr. J. Smith Turner, will give his valedictory address.

Mr. H. C. Quinby, the President-elect, will then take the chair and deliver his address.

1 p.m.—Adjournment for Luncheon.

2.30 p.m.—Reading and Discussion of Papers (see list).

4.30 p.m.—Adjournment.

4.30 to 6.30 p.m.—Garden Party given by the Mayor and Mayoress of Salford (Mr. and Mrs. Keevney), at the Peel Park Museum, to Members and Ladies.

8 p.m.—*Conversazione* given by the Members of the Midland Branch of the British Dental Association, and the Manchester Odontological Society in the Museum Buildings of Owens College.

Friday, August 12th.

9.30 a.m.—The Annual Meeting of the Subscribers to the Benevolent Fund, in the Council Chamber of Owens College.

10.30 a.m.—Discussion (see below).

1 p.m.—Adjournment for Luncheon.

2.30 p.m.—Discussion. Papers. Short Papers and Demonstrations.

5 p.m.—Adjournment.

7 p.m.—Annual Dinner of the Association at the Grand Hotel (Tickets One Guinea each, inclusive of Wine, or Half-a-Guinea each without Wine).

Saturday, August 13th.

9.30. a.m.—Demonstrations at Owens College (see list).

12 noon.—Conclusion of Demonstrations.

The President, Mr. H. C. Quinby and Mrs. Quinby, will entertain the Members and Ladies at Luncheon, at the Rink Gardens, Buxton, and will give a Garden Party in the afternoon. (For special train arrangements see p. 374).

PAPERS.

"On some practical details of Operative Dental Surgery and Mechanics, including (a) the Advantages of the Extended (or Howard) Position in Extracting Teeth when Ether or Chloroform is used. (b) Sponge Grafting in Cases of Absorbed, Perforated, or Incomplete Roots of Teeth. (c) Enamel Chisels, some New Forms, how to Sharpen Enamel Chisels. (d) A New Vulcanizing Flask, and how to use it. (e) A few Instruments and Appliances including Engine Disks and Carrier, Points for Drying Root Canals, Pliers for Manipulating Canal Points, &c. Pellet Oven, and Gutta Percha Heater and Vaporizer, Large Faced Hand Mallet, &c." by G. BRUNTON.

"The Application of Electricity to Dental Purposes" (with Practical Illustrations), exhibiting Cuttriss, Wallis & Co.'s Gas Engine and Dynamo, a New Motor with Governor, Motor and Stand for Grinding and Polishing, Gravilly Batteries for recharging Accumulators, by W. BROUGHTON.

"The Rotation of Twisted Upper Incisors," by W. SIMMS, L.D.S.I.

A Second Report on the Teeth of School Children, will be presented by the Schools Investigation Committee.

On Friday morning a Discussion upon "The Desirability of Extraction of the 6-year-old Molars" will take place. The President will introduce the subject, and call, in the first instance, upon certain Members who have promised to speak and then the discussion will proceed generally.

SHORT PAPERS AND DEMONSTRATIONS.

"A New and Portable Apparatus for the Administration of Oxygen with Nitrous Oxide Gas," by FREDERIC W. HEWITT, M.A., M.D. Cantab., of London.

"On some points in the Administration of Nitrous Oxide Gas," by G. ROWELL, F.R.C.S.Eng., of London.

"On Nitrous Oxide Gas and Ether," by A. WILSON, F.R.C.S.Eng., of Manchester.

Mr. S. A. COXON, L.D.S.I., will demonstrate an "Apparatus for the Prolongation of the Anæsthetic Effects of Nitrous Oxide Gas."

DEMONSTRATIONS. (*Saturday Morning.*)

A Gag and Tongue Depressor for use in Anæsthetic Cases, by G. M. P. MURRAY, F.R.C.S.I.

H. BALDWIN, M.R.C.S., L.D.S.Eng., on Contour Filling with Gold (and Tin and Gold) in large cavities.

E. H. L. BRIAULT, L.D.S.Eng., on Porcelain and Gold Crown.

W. BROUGHTON, on Electrical Dental Apparatus.

W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S.Eng., on Porcelain-faced Gold Crown.

P. HEADRIDGE, L.D.S.I., on Restoration of Fractured Crowns with Porcelain.

J. HOOTON, L.D.S.I., on a New Method of Moulding and Working Continuous Gum.

W. R. HUMBY, L.D.S.Eng., a Steam Swager.

R. P. LENNOX, on "Fusible Metal," and on a Method of taking an Impression of a Root for an all Gold Crown.

W. MATTHEWS, L.D.S.Eng., on Continuous Gum, using Dr. Ambler Tees' furnace.

L. MATHESON, L.D.S.Eng., on the Exclusion of Moisture from Cavities.

H. ROSE, L.D.S.Eng., on Latest Experiments in Continuous Gum Work.

G. O. WHITTAKER, L.D.S.Eng., on Porcelain Rod Inlay.

E. LLOYD-WILLIAMS, L.R.C.P., M.R.C.S., L.D.S.Eng., on Suersen's Obturators.

MICROSCOPICAL SECTION IN THE LIBRARY OF OWENS COLLEGE.

DEMONSTRATIONS.—(*Either on Friday Afternoon or Saturday Morning, at a time and place to be announced.*)

A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S.Eng., Practical Demonstration of a New Method of Cutting and Staining Sections.

J. J. ANDREW, L.D.S.Eng., Hard Section Cutting and Mounting.

J. W. DUNKERLEY, L.D.S.I., Hard Section Cutting.

— MELLOR (Zoological Department, Owens College), on Injecting Tissues for Section Cutting.

J. H. MUMMERY, M.R.C.S., L.D.S.Eng., Microscopical Specimens with Lantern.

The Exhibition of Microscopical Objects and Apparatus will be open daily during the Meeting, and will consist of the following, viz. :—

(1) Objects under Microscopes, Dental Histology (Comparative—Human), Dental Pathology.

(2) Photomicrographs and Transparencies (Lantern Slides).

(3) Exhibits of Bacteria Cultures and Appliances used by Professor DELEPINE, of Owens College.

Microtomes by Professor MARSHALL, of Owens College.

(4) Apparatus for use in Microscopical Research.

(a) Designed by Members of the Association.

(b) Designed by Microscopical Department of Owens College.

(c) Designed by the Trade.

(5) Literature on Microscopy and Bacteriology.

The Loan Collection Museum of the Association will be open daily. A catalogue of the same is in course of preparation.

Inquiries relative to the Museum should be addressed to G. G. Campion, L.D.S.Eng., the Curator, at Owens College.

Dental Instruments and Novelties will be exhibited by Messrs. Ash & Sons, Dental Manufacturing Company, Jamieson, Hallam, Cuttriss & Co., and others.

The above arrangements are subject to alteration according to the time at the disposal of the Committee.

Notices of the order of proceedings, &c., will be posted daily at Owens College and the Grand Hotel.

SPECIAL NOTICES.

The Grand Hotel, Aytoun Street, will be the head-quarters of the Association during the meeting, and Reception, Reading, Writing and Smoking Rooms will be put at the disposal of Members, and the Meeting Room of the Manchester Odontological Society in the hotel. A special tariff of 6/- and 7/-, according to floor, for bed, table d'hôte breakfast, and attendance has been arranged, and Members are requested to make early application to the Manager to secure rooms. Other hotels near are the Queen's, Victoria, Royal, Clarence, Albion, Grosvenor, and Trevelyan (Temperance), and the tariffs range upwards from 6/- for bed, plain breakfast and attendance.

The Members of the Midland Branch will entertain the Members of the Association and Ladies at Luncheon, at the Grand Hotel, on Thursday and Friday, and will provide conveyances to and from Owens College (a walking distance of 15 minutes) for that purpose, and will also provide, in connection with the Garden Party at Buxton, a special first-class Saloon Train which will leave London Road Station at 12.45 a.m., arriving at Buxton at 1.50 p.m., returning from L. and N.W. Railway Station, Buxton, at 7 p.m. Members may return from Buxton to Stockport or Manchester by any Ordinary Train leaving at a later hour, or if desirous of remaining until Monday or Tuesday following, may return by any Train on payment of 1/6, and having their return tickets endorsed by the Booking Clerk, at Buxton. The following Buxton Hotels may be found convenient, viz., Royal, St. Ann's, Crescent, Palace, Old Hall, &c.

Luncheon Tickets for Member and Lady can be obtained of the Secretary, Mr. Pink, at the Secretary's Office, Owens College. Also the additional Luncheon Tickets (3/6), and Tickets for the Annual Dinner. Members of the Midland Branch who have subscribed not more than 10/6 to the Reception Fund, will be entitled to one free Luncheon Ticket on Thursday and Friday.

The Ladies' Committee have arranged, by kind permission of Messrs. R. Haworth & Co., that the ladies shall visit their Cotton Mill in Salford, and inspect the various processes of cotton spinning, and Tea will be provided at the "Old America Exhibition," in the Botanical Gardens. Conveyances to these places will be provided.

On Friday, the night of the Annual Dinner, Mrs. Quinby will hold a Reception for Ladies at the Grand Hotel. 8.30 p.m., Music, &c.

The Manchester Ship Canal Company will grant a limited number of passes to Members desirous of seeing portions of the Canal Works. Application for such passes must be made to the local Secs. Members may visit the Devonshire Hospital, the Governors having given special permission to that effect.

All Members attending the Meeting are requested to enter their names in the book provided for that purpose.

W. B. PATERSON, F.R.C.S., L.D.S.Eng., *Hon. Sec.*

THE MUSEUM.

We are now able to form some idea of the number and value of the specimens which have been sent for the Museum, and the success of this part of the meeting is beyond all doubt. The collection of abnormal teeth in tubes will number between 1,200 and 1,300, and in addition to these 300 or 400

specimens of pathological teeth have been sent which will not be included in the catalogue. The large number of specimens sent to us has made it necessary to confine our attention wholly to specimens illustrating irregularities of the teeth in size, form, position, &c. Other specimens will, if possible, be exhibited, but will not be classified or included in the catalogue. The system of labels which was adopted at the outset has been found to work admirably, and has simplified the work in a way which will be realised only by those who have gone through the experience of arranging and classifying a museum in the short space of a month.

The specimens of abnormal teeth are of the greatest interest, and show some abnormalities which have not hitherto been described, and also many transitional forms between normal teeth and those of striking abnormality. The models number over 1,000, including a large number of split models showing the result of extracting the sixth-year molars. These, it is believed, will form a valuable section of the Museum, and be worthy of the closest study. Arrangements have been made for photographing some of the more remarkable specimens in the Museum, as many of them are worthy of being recorded in some permanent form. One point it is necessary to specially call members' attention to. The Committee has decided that in no case will members be allowed to remove their specimens at the close of the meeting. This may, at first sight, seem somewhat arbitrary, but it is felt that if once the cases are opened it will be absolutely impossible to keep record of what specimens are taken away, and in the confusion which would be likely to result many would certainly be lost. The Committee, therefore, have decided that none shall be removed by members at the close of the meeting—they will all be packed up and sent to their owners in the week following the meeting. The Museum, then, seems likely to form not the least important part of what promises to be a successful meeting, and the more members there are to see and profit by it the better.

President of the Midland Branch, W. E. HARDING, Shrewsbury.
President-elect of the Midland Branch, COLONEL R. ROGERS, Cheltenham.
Hon. Treasurer of the Midland Branch, SIDNEY WORMALD, Stockport.
Hon. Secretary of the Midland Branch, I. RENSHAW, Rochdale.

ARRANGEMENTS COMMITTEE.

Members of Midland Branch Council.

Henry Campion, Manchester.	G. G. Campion, Manchester.
H. C. Quinby, Liverpool.	Henry Blandy, Nottingham.
W. E. Harding, Shrewsbury.	M. Johnson, Chester.
S. Wormald, Stockport.	W. H. Waite, Liverpool.
G. Brunton, Leeds.	J. C. Storey, Hull.
W. Glaisby, York.	T. Murphy, Bolton.
T. E. King, York.	I. Renshaw, Rochdale (Branch Sec.).
J. A. Fothergill, Darlington.	

Manchester Members.

W. Dougan.	W. A. Hooton.	G. N. Skipp.	Henry Planck.
L. Dreschfeld.	E. Houghton.	Thomas Tanner.	E. H. Williams.
P. Headridge.	P. A. Linnell.	G. O. Whittaker.	
W. Headridge.	W. Simms.	E. P. Collett.	

Liverpool Members.

M. Quinby.	E. J. M. Phillips.	T. Mansell, Birkenhead.
J. Royston.	R. Edwards.	

HENRY CAMPION, *Chairman.*
 L. DRESCHFELD, *Vice-chairman.*
 I. RENSHAW, { *Secretaries.*
 W. SIMMS, }

The Secretaries of all committees are *ex-officio* members of the General Arrangements Committee.

Reception and Finance Committee.

Henry Campion, Manchester.
 H. C. Quinby, Liverpool.
 S. Wornald, Stockport.
 I. Renshaw, Rochdale.
 E. J. M. Phillips, Liverpool.
 W. H. Waite, Liverpool.
 G. Brunton, Leeds.
 W. Glaisby, York.
 W. E. Harding, Shrewsbury.
 D. S. Hepburn, Nottingham.
 M. Johnson, Chester.
 T. Murphy, Bolton.
 John Taylor, Warrington.
 Alex. A. Matthews, Bradford.
 H. Morley, Derby.
 F. Harrison, Sheffield.

G. G. Campion, Manchester.
 E. P. Collett, Manchester.
 W. Dougan, Manchester.
 L. Dreschfeld, Manchester.
 P. Headridge, Manchester.
 W. Headridge, Manchester.
 E. Houghton, Manchester.
 W. A. Hooton, Manchester.
 P. A. Linnell, Manchester.
 C. R. Morley, Manchester.
 Henry Planck, Manchester.
 W. Simms, Manchester.
 H. C. Smale, Manchester.
 T. Tanner, Manchester.
 G. O. Whittaker, Manchester.
 E. H. Williams, Manchester.

HENRY CAMPION, *Chairman*.

W. A. HOOTON, *Treasurer*.

P. A. LINNELL, } *Secretaries.*
 G. O. WHITTAKER, }

Museum Committee.

G. Brunton, Leeds.
 W. A. Hooton, Manchester.
 D. Headridge, Manchester.
 P. A. Linnell, Manchester.
 G. O. Whittaker, Manchester.
 W. Simms, Manchester.
 T. Murphy, Bolton.
 R. Edwards, Liverpool.

T. Mansell, Birkenhead.
 M. Johnson, Chester.
 W. B. Paterson, London.
 Storer Bennett, London.
 L. Matheson, London.
 Daniel Corbet, Junr., Dublin.
 R. H. Moire, Dublin.
 I. Renshaw, Rochdale.
 GEORGE BRUNTON, *Chairman*.
 G. G. CAMPION, *Secretary*.

Microscopical Committee.

J. J. Andrew, Belfast.
 G. G. Campion, Manchester.
 A. W. W. Baker, Dublin.
 D. E. Caush, Brighton.
 J. F. Colyer, London.
 George Cunningham, Cambridge.
 F. Harrison, Sheffield.
 W. A. Hooton, Manchester.

M. Johnson, Chester.
 C. S. Tomes, London.
 T. Charters White, London.
 J. W. Dunkerley, Manchester.
 J. H. Jones, Sale.
 D. Headridge, Manchester.
 T. Mansell, Birkenhead.

M. JOHNSON, *Chairman*.
 D. HEADRIDGE, *Secretary*.

Demonstration Committee.

G. O. Whittaker, Manchester.
 C. R. Morley, Manchester.
 P. Headridge, Manchester.
 G. G. Campion, Manchester.
 W. A. Hooton, Manchester.
 P. A. Linnell, Manchester.

W. Dougan, Manchester.
 E. Houghton, Manchester.
 W. Broughton, Eccles.
 W. Dykes, Bowdon.
 R. Edwards, Liverpool.
 T. Mansell, Birkenhead.
 P. HEADRIDGE, *Chairman*.
 W. A. HOOTON, *Secretary*.

Dinner Committee.

Hy. Campion, Manchester.
L. Dreschfeld, Manchester.
Thos. Tanner, Manchester.

M. Johnson, Chester.
I. Renshaw.
W. Simms.

HENRY CAMPION, *Chairman.*

I. RENSHAW, } *Secretaries.*
W. SIMMS, }

Ladies' Entertainment Committee.

Henry Planck, Manchester.
F. W. Minshall, Salford.
E. P. Collett, Manchester.
W. Dougan, Manchester.

C. R. Morley, Manchester.
P. A. Linnell, Manchester.
W. Dykes, Bowdon.

HENRY PLANCK, *Chairman.*

F. W. MINSHALL, *Secretary.*

Local Executive to Act in Cases of Emergency.

Henry Campion, Manchester.
L. Dreschfeld, Manchester.

W. Simms, Manchester.
I. Renshaw, Rochdale.

The functions of the Reception Committee will cease with the *Conversazione* at Owens College.

Other matters requiring attention will be considered by the Arrangements Committee.

I. RENSHAW, } *Secretaries.*
W. SIMMS, }

Southern Counties Branch.

THE members of the above branch held their annual meeting at Brighton, on Saturday, June 18th. The weather was beautiful, permitting the programme arranged by Mr. J. Dennant (the president-elect) and Mr. Walter Harrison (the local hon. secretary), to be fully carried out. A council meeting was held at 10.30, at the conclusion of which a good number of the members accepted the invitation to a drive to the Dyke, and, needless to say, the excursion was greatly enjoyed.

THE GENERAL MEETING.

On arriving again at the Pavilion the members incurred a further debt to the hospitality of the president-elect by partaking of luncheon. Subsequently a general meeting was held, Mr. G. Henry, of Hastings, the retiring president, occupying the chair, and there were also present :—Messrs. J. Dennant, president-elect (Brighton), Morgan Hughes, hon. secretary (Croydon), J. H. Redman, hon. treasurer (Brighton), Walter Harrison, hon. local secretary (Brighton), W. Trollope, F. Bell (Tunbridge Wells), H. Beadnell Gill (Norwood), F. V. Richardson (Brighton), Alderman Rymer, Messrs. J. F. Rymer (Croydon), J. H. Reinhardt (London), F. J. Van der Pant (Kingston-on-Thames), Daish (Ryde), W. B. Bacon (Tunbridge Wells), James E. Welch (Brighton), E. T. Cooksey (Worthing), E. Lloyd-Williams (London), G. Oliver Richards (Richmond, S.W.), Octavius A. Fox, John Wood, J. N. Stoner, Augustus Beckley (Brighton), A. Gabell

(Redhill), M. Dickenson (St. Leonards-on-Sea), Leslie Maxwell (Hastings), Douglas S. Caush (Brighton), Stephen Hoole (Croydon), Horace Colyer (Ryde), and Lawrence Read (London). The visitors included Messrs. Harold Stoner (Brighton), Penfold (London), S. J. Hutchinson (London), and U. E. Cave (Brighton).

The CHAIRMAN having acknowledged the generosity of the president-elect, which they had experienced that morning, and the minutes of the last annual meeting having been read, the HON. TREASURER (Mr. J. H. Redman) made a brief statement as to the finances. The balance in hand last year, he said, was £18 os. 1d., but expenses of the past twelve months reduced it to £15 8s. 1d. It was, he stated, agreed at the council meeting that morning to send five guineas of the balance to the Benevolent Fund, which was all they could afford at present. He thought the condition of things he had disclosed was very satisfactory.

On the motion of Mr. REINHARDT, seconded by Mr. BACON, the Report was confirmed.

The Hon. SECRETARY (Mr. Morgan Hughes) then gave a few particulars, by way of report, of the operations of the branch during the year. Four new members had, he stated, been elected, but from various causes four had been lost to the branch, among them, he was sorry to say, Mr. Felix Weiss, who was known to most of them; therefore their members had remained stationary. The meetings held during the year had been profitable, and notwithstanding the difficulty of getting gentlemen to read papers, the time had been fully occupied with the discussions and papers which had been forthcoming. He enumerated the meetings which had taken place, and said that during the ensuing year it was proposed to hold the usual number. The first would be on the third Saturday in October, at Folkestone; the next, on the third Saturday in January, probably at Windsor; the other, which would be a clinical meeting, at Brighton, in April; and the annual meeting at Norwood, where they would be received by the president-elect for 1893.

Mr. HARRISON moved the adoption of the latter part of the Report, which was seconded by Mr. WELCH, and carried.

VALEDICTORY ADDRESS.

The retiring PRESIDENT next delivered his valedictory address. With the election of officers, he said, came his last pleasing duty as their president—that of rendering to his esteemed successor the proud dignity which they conferred on him (Mr. Henry) a short twelve months since, and to which might be applied the dictum of the immortal Shakespeare:—

Honour travels in a strait so narrow,
Where but one goes abreast.

Conscious of many shortcomings, he had nevertheless done his best to uphold the *prestige* of the presidential chair, and to further the interests of their own important branch of the British Dental Association; and he desired to acknowledge with warm appreciation the uniform kindness and co-operation of his colleagues in office, which had made his onerous duties at once easy and pleasant. His experience during the year, including attendance at the Board meetings of the parent organisation, had afforded him a deeper insight into the working of the Association and a stronger realisation of the immense debt they owed to those honoured pioneers (some of whom they were happy in having with them that day), who, through untold opposition, had virtually secured for dental surgery her right place amongst the liberal professions. He said virtually—without any disparagement of their Herculean labours—because there was, if he mistook not, still a feeling in some minds that the dental licentiate, though fully representing proficiency, lacked an important element of equality in the eyes of their medical brethren. It was, therefore, no wonder that there were Radicals amongst them, who still hankered after “Home Rule in Dentistry,” and in order to stamp that out, one could wish it were within the range of possibility, that on passing the necessary medical tests the fully-qualified dental surgeon could use the letters “M.R.C.D.S.,” granted by a Royal College of Surgeons and Dental Surgeons. Concluding, he said that he was thrice happy in falling back to the ranks, so convinced was he that in Mr. John Dennant, the chief promoter and father of the branch, who had given continuous evidence of his self-denying and untiring zeal on behalf of its best interests, as well as of the profession generally, they had indeed the right man most eminently fitted to occupy the post of honour to which it was now his (Mr. Henry’s) great pleasure to induct him.

Mr. DENNANT, in assuming the chair, said he was very much obliged to Mr. Henry for his kind references to himself, and that he was sure Mr. Henry, in retiring from the office which he had so well and ably filled, would carry with him the affectionate regard of them all. He then asked “our good firm friend, Alderman Rymer,” to propose a vote of thanks.

Alderman RYMER said it was a privilege, as well as a pleasure, to propose that the best thanks of the members of the branch should be accorded to Mr. Henry for the way in which he had discharged the presidential duties during the past year. He had known Mr. Henry for a great number of years, and was not surprised that he had fulfilled the duties of the office so well. They remembered the hospitality, kindness, and successful arrangements which characterised the proceedings at Hastings at the last annual meeting, an occasion which they thoroughly enjoyed and appreciated, and on subsequent occasions when Mr. Henry had presided—which he believed was at every one of their meetings—he had been struck with the geniality of his conduct

in the chair and the great interest he had taken in everything that had come before the branch.

Mr. MORGAN HUGHES seconded the motion, remarking that he had had every opportunity of observing the way in which Mr. Henry had fulfilled the duties of the office, and he must say that the way in which he had acted in the chair had been simply perfect.

The PRESIDENT heartily supported the proposition, observing that the more they learned of Mr. Henry the more they esteemed him both for his character and his professional standing.

The vote having been accorded with acclamation, the EX-PRESIDENT acknowledged the compliment of which he had been the recipient, and promised that his zeal on behalf of the branch should be unabated from that hour ; indeed, it would be intensified, and he should feel it a pleasure to spend and be spent on behalf of the main cause they had at heart, which he thought might be summed up in the expression "professional union and the maintenance of the highest professional standard."

The President then stated that the next business was to decide the place of meeting for the annual gathering in 1893, and the Council had unanimously resolved to recommend that the best place of meeting in the interest of the branch would be away from the coast—somewhere nearer London, and within reach of many members who could not travel quite so far as the coast. Norwood was therefore recommended as the place, and Mr. Beadnell Gill as the President for 1893. Norwood was a very attractive spot, and Mr. Gill was a gentleman of high professional standing, who would well occupy the chair of the branch. He had great pleasure in moving the adoption of the Council's recommendation.

Mr. REDMAN seconded, and the motion having been carried unanimously,

Mr. GILL, who had a cordial reception, returned thanks for the honour in store, and said he would do his best to carry out the business of the Association as it had been done in the past.

The CHAIRMAN afterwards moved the re-election of the hon. treasurer and hon. secretary, saying that no words were needed to commend the proposition, as all were cognisant of the valuable services of Mr. Redman and Mr. Hughes to the branch.

Mr. HENRY, as one who had recently benefited by the activity and zeal of those two officers, seconded the motion. Mr. Hughes' proximity to London and the zeal he had displayed in the secretaryship hitherto made him the most desirable member they could have for the office ; and Mr. Redman had always given his best attention to the finances, which had prospered under his hands.

The motion was accepted *nem. con.*, and Mr. REDMAN and Mr. HUGHES acknowledged their re-election.

The CHAIRMAN stated that the branch had the privilege of nomi-

nating a member to the Representative Board of the Dental Association, and that the Council recommended Mr. J. H. Whatford, of Eastbourne. He (Mr. Dennant) relinquished the position on taking up the presidency, and he had no doubt that the Association would not hesitate to accept a gentleman so widely respected as Mr. Whatford.

The choice of the Council was unanimously endorsed.

AMENDMENT OF A BYE-LAW.

According to notice, Mr. BEADNELL GILL moved an amendment to the bye-laws of the branch with the view of making it clear that when a member was elected on the Council his term of office was three years.

The proposed alteration was discussed at length, and after several further amendments had been propounded and withdrawn, it was agreed, on Mr. GILL'S suggestion, that the alteration should affect bye-law 15 only, which should read thus :—"That the members of the Council be elected for at least three years, and on the expiration of his third year of office each member so elected shall retire from the Council, but shall be eligible for re-election, all the vacancies thus created to be filled up at the annual general meeting of the branch."

Messrs. Reinhardt, Gabell, G. O. Richards, and John Wood were afterwards elected, by ballot, members of the Council.

PRESIDENT'S ADDRESS.

The PRESIDENT then read his inaugural address as follows :—

Gentlemen,—My first word must be one of very cordial thanks for the honour you have conferred on me in electing me your President—a compliment none the less welcome to me from the fact that many of you have kindly expressed the wish that I should have taken the position earlier, but which I felt it my duty to decline for well-known special reasons. I am fully conscious of the responsibility of the office and my own deficiencies ; but with your kind forbearance and support, I will try to justify your choice by devoting my humble abilities to your service, in promoting the interests of this branch and the cause of professional progress. My second word, which I offer on behalf of my professional brethren of Brighton and Hove and myself, is one of very hearty welcome to our bright and healthful seaside town, with the hope that its invigorating breezes may send you all home again much refreshed by your visit.

In the remarks which it is my province to make to you, I am guided by the desire that they shall be of some practical use. I will avoid the temptation to refer to the past, so pregnant with active service in the cause of professional reform—service in some cases comparatively silent, but influential, given by those—with whom it was my pleasure

to be associated—long since passed away, who never lived to see the full fruition of their hopes ; I can but think of them, though their names are not remembered in this connection, and perhaps on some other occasion I may find a more fitting opportunity for this reference. Fourteen years have passed away since the passage of the Act of Parliament which created us a cognate profession, and which called into existence our Association. We may, I think, congratulate ourselves upon the work done, and upon the wisdom which has guided our counsels ; but as in the individual the fourteenth year is a critical period of life, so with our Association. There are indications of youthful energy, which may disport itself in erratic courses, unless suppressed and held in check by careful attention to the voice of wisdom and experience. In the natural process of evolution, changes are necessarily going on. One by one we are losing influential voices which have hitherto commanded our united and respectful attention—voices that were as pilots on a dangerous coast, guiding us safely amidst shoals and quicksands. The time is not far distant, I fear, when those who are now leading us with great practical wisdom will ask for rest, and others must take their places, and here, I think, is the element of danger. We are at this moment a united body, and I trust no mistaken action will divide us. Let us never consent to depart from a thoughtful regard for the opinion, in vital points, of those who have hitherto led us so well. One of the indications of our *progress* will be found in the improved condition of our Register. This year we have 79 names more on our list than last year, making a total of 4,896, of whom about 24 per cent. possess the qualification of L.D.S. Of those who were registered as in practice prior to 1878, there has been a continual diminution from 90.87 per cent. for that year, to 75.55 per cent. for last year, which is satisfactory.

In our retrospect we must be thankful for all that has been accomplished ; but as standing still practically means retrogression, we should ask ourselves in what direction we now should move. In his admirable review of reform in the dental profession, published in 1876, the late Mr. Alfred Hill brought his work to a conclusion with this trite remark, "The lever now in the hands of the profession is *education*." Doubtless that applies equally now as then ; and I trust I may not outstep my duty, when I say in all earnestness, let us put our hands to it, and set it still further in motion. We have recently had an interesting discussion on the question of a higher special diploma, most ably led by Mr. George Champion. And, as far as I can judge, opinion in the profession points to a contentment with our diploma, which has been made ~~most~~ searching and complete ; so much so that a large proportion of ~~examinees~~ are constantly referred to their studies. Certainly without *this* qualification no man, whatever other diplomas he may possess, can be considered fully equipped for the successful practice of his profession. For those who have ambition, time, and

means, and who wish to widen their basis of knowledge, there are the avenues of study which lead to the ordinary medical diplomas, or the science degree of a university ; but these must ever remain matters of choice, and not of compulsion. Therefore I assume that the education at the upper end of our curriculum is reasonably satisfactory. It seems to be at the lower end where the weak point lies.

We sometimes hear the remark from those who have the training of our students at the dental hospitals, that many of them who enter there are more deficient than they should be in technical knowledge and manual dexterity. And Mr. Beadnell Gill, in a paper which he read at our meeting at Ryde last year, well expressed the opinion prevailing throughout our profession, that the average mechanical assistant was not equal to the execution of the higher forms of artistic work now required by high-class dentists. In the discussion which ensued Mr. George Cunningham laid before us a tentative scheme (now, I believe under consideration) by way of remedy ; namely, to found an Institute of Dental Technology for providing manual training and instruction in those branches of art and science which have an essential bearing on the processes of mechanical dentistry, which Institute might be an optional alternative to the present system of private pupilage and apprenticeship. That scheme is not yet before us, and I shall refrain from commenting upon it on this occasion. I have no doubt at the proper time it will receive that full and careful consideration which so much labour and so important a subject deserve. In these days of rush and hurry we are too apt, perhaps, to generalise, and to arrive without due consideration at hasty conclusions. We accept the theories of doctrinaires as though they contained the potential force of all wisdom, instead of bringing to our aid the teachings of experience. Even in this very point under consideration, are we not tempted at once to solve the problem by saying that the cause of the trouble is a defective laboratory training ? There is, probably, some truth in this broad statement, and will, I fancy, always be so, for in many instances the master, from pressure of work in his operating-room, and other causes, fails to give that close supervision to his pupil which is necessary ; or the pupil, from indifference and lack of interest in his work—which we know is not uncommon in all professions among youths of that age, when inexperience and want of application produce desultory and ineffective work—fails to seize his opportunities.

Doubtless these are contributory causes to the trouble, but are there not others ? In earliest years how often are our children prevented from becoming ambidextrous, by being chided for using the left hand. And I venture to submit to you whether much of the mischief referred to may not be traced to the defective character of our preliminary education. Many youths enter our laboratories without having had their powers of observation and their hands specially trained in school life. Truly in this matter of education, we people of the middle and

professional classes are a long-suffering race, having to pay—which we do, I think, ungrudgingly—for the instruction of the industrial classes in addition to our own; while we have been left alone, so far as national assistance and opportunity is concerned. Insular ideas and prejudices have been too strong to allow the adaptation of our scholastic systems to modern needs and development, after the example of continental nations. We continue to *stuff* and *cram*, in spite of the pronounced opinion of responsible educators, that this is not education. I am no educator, nor will I attempt to pose as one, but I will ask you to listen for a brief moment to those who are entitled to be heard on the subject. Among the ancients, Aristotle says, “The desire of knowledge is implanted in man, and the mind grows as the body does, by taking *proper nourishment*, not by being stretched on a rack.” Comenius—a Moravian bishop and great educator, the tercentenary of whose birth has just been held—said, “Education should proceed in the following order: first, educate the senses, then the memory, then the intellect, last of all the critical faculty. This is the order of nature.” In the course of instruction which he recommended—which was very varied—he included “*general arts and handicrafts*,” and this, remember, 300 years ago. Amongst modern philosophers, Carlyle says, “Boys’ minds are frequently dwarfed and their interests in intellectual pursuits blighted, by the practice of employing the first years of their school life in learning things which it is quite impossible for them to understand or care for.” But a change for the better is appearing in many directions; and from public schools we hear now and again the voice of the educational reformer. Listen to the headmaster of Rugby School, the Rev. Dr. Percival, who says, “Just as the matter of general education, through our insular disregard of what was happening in other countries, we took no thought of the work of such men as Humboldt and those who followed him and thus allowed Germany a start of fifty years or more, so again during the last twenty-five years, while Germany, Austria, Switzerland, and other countries have been introducing, testing and elaborating new methods of industrial and mercantile instruction, England has done surprisingly little in this direction, when we consider the interests at stake.” Again he says, “Our school system has to be modified from top to bottom, so as to give average boys and girls a practical mastery of one or two continental languages, and we have to aim equally at giving a sound training in the *elements of natural science*, with some reference to its practical applications.” And again, in meeting the objection, “that to make these so-called ‘*bread studies*’ the dominant subjects, is to degrade English education,” he says, “This objection readily imposes on the public mind, as it seems to come with the air of being itself the mark and sign of a superior education, but it is in reality altogether baseless. What has really degraded education hitherto has been the dull *mechanical teaching* of

a number of fragmentary subjects, or scraps of subjects, which have not been felt by the pupils to have any direct bearing on their life, and have consequently, in the majority of cases, roused no interest, stirred no intellectual activity, and cultivated no taste." This is a weighty professional opinion of a serious and widely acknowledged defect, and points, if I mistake not, to a greater need for flexibility in our public school system.

Thoughtful men everywhere are urging the necessity for further special efforts in technical instruction, especially that side of it which cultivates the power of correct observation and manual training, such for instance, as drawing, freehand, model, geometric and perspective, and elementary carpentry, wood-carving, and clay-modelling. The use of the pencil, compasses and tools generally, should be considered an integral part of education, not for the purpose of turning out carpenters, but for the perpetual training of the hand and eye, and the practical application of the principles taught. This would relieve the monotony of head work, brighten the child's school life, and stimulate the exercise of all his faculties; and, I would add, should be commenced in the preparatory school. I find the *Educational Review* for May forcibly saying, "Manual training, to be worth the consideration of educators, must be based on a knowledge of scientific principles, and calculated to bring out the mental powers which have been so long allowed to lie latent. If a boy simply learns how to make a joint, for example, he has mastered a lesson in carpentry, but he has missed the lesson in science. He must learn in making a joint to calculate the problem in mechanics which explains and determines the essential value of the joint. This it is which differentiates manual training from technical instruction, the latter being in a real sense the teaching of a trade. While the technical school is training up experts for a calling, the general school with its manual training is stimulating that creative power which is so strongly inherent in human beings." I trust that the demand for this teaching may produce a supply of educated men, trained in this subject, understanding child nature, and capable of imparting this knowledge in an interesting manner, which an ordinary artizan could scarcely be expected to do. I am glad to know that 100 men are training for this work, at the present moment, in one institution in London. I may be met with the remark that all children have not taste for drawing or manual work; that is true, and in many cases possibly from want of sufficiently early training. But the attempt to train *all* the faculties will at least have this advantage; it will indicate who not to make dentists, surgeons or engineers.

I now turn from our children to our pupils and apprentices. How can we best promote their interests, throughout the country, in this matter of technical manipulative training? A special institution could not meet the needs of the entire profession because of its partial application. I would suggest therefore that we make use of the

opportunities for special instruction, which are coming to our hand in every part of the country through the medium of County Councils and County Borough Councils. These authorities have been vested with powers under the Technical Education Acts of 1889-90-91, to spend the whole or part of that large sum which had been reserved by the Chancellor of the Exchequer for the purchase of public houses, but which, fortunately for this purpose, Parliament refused to vote for that object. They have also power to levy a rate for the purpose not exceeding one penny in the pound. The estimated amount for their appropriation last year for England and Wales was no less than £743,000. It is thought by experienced minds that this departure from the centralised control of our elementary school system—which may be fairly described as turning children, with their natural longings for out-growth and freedom, into calculating and writing machines, by machinery—may have a salutary effect, in the eventual emancipation of child life from a position of thralldom to one more in harmony with its nature, its environment, and its need. Sir Henry Roscoe, M.P., than whom I could not mention a name more entitled to respectful attention in this connection, in an address he gave at the Heriott-Watt College, Edinburgh, in October, 1890, said: "The advantage of placing secondary education of the country under local management, and especially under the management of bodies such as County Councils, is, in my view, much to be preferred to entire control by a Central Government Department. Although we may admire the perfect working of the French system, where, it is said, the same chapter of Cæsar's Commentaries is being read by all the boys in all the French Lycées at the same hour, yet it is one which we should not like to see introduced into our country.

"We wish to encourage individualism as against uniformity; we desire to have local colouring in place of Government monotone; and this we get by placing the schools under local management, tintured only by such an amount of Government oversight as may protect the public against schemes manifestly absurd, or distinctly ill-adapted to the needs of the place." Such, then, gentlemen, is the system now at work at our very doors. Whereas technical schools have hitherto been confined for the most part to manufacturing centres, established by local enterprise, and assisted by the Science and Art Department, the City and Guilds of London Institute, and the Society of Arts, all of which have proved most helpful agencies; we have now in county districts, and a large number of towns, technical teaching intended to be adapted as far as possible to local wants. University Extension Lectures can also be included in this general scheme. Doubtless, as with all new machinery, we may find at first some imperfection in working, and some adjustment necessary, still I think it must be a matter of congratulation that this great need is being met and supplied. Out of sixty-one County and County Borough Councils

sixty have determined to spend the whole, or a large proportion of the whole, of the fund which Parliament has provided for the purpose for which it was intended, London, strange to say, being the only delinquent, having used the fund towards the reduction of the rates. A regard for your patience this summer afternoon prevents my crowding this address with statistics, but in the pamphlets which I will distribute amongst you, you will find a great deal of important information, together with a list of educational centres now at work, from which you will be able to ascertain the most accessible schools, but these will constantly increase as time goes on.

As an example of what large towns are doing, I cannot do better than quote our own. Brighton, as you know, has a great reputation as an educational centre, and it would have been strange indeed if it had not risen to the occasion in this new departure. Our technical agencies within the meaning of the *Act* are: (1) The School of Science and Art; (2) The School Board through the following institutions: The Organised Science School and Higher Grade School, and Evening Classes (elementary, advanced, and commercial); (3) The Technical School; all of which, thanks to private benefactions and efficient working, are entirely self-supporting; and there are science classes held in connection with some of the church schools. The sum allotted to Brighton, as its share of this educational fund for the year, is about £2,700. Our own Borough Council is admirably entering into the spirit of this movement, and has taken over the Science and Art School for maintenance and management, assisted by many of the Old School Committee. It is also assisting various other agencies in the town engaged in technical teaching, so that, as far as Brighton is concerned, we have provision for our pupils in the Science and Art School, and for our apprentices in the Technical School in York-place, for which school the town is much indebted to the benevolence and enthusiasm in education of one of the members of our School Board, Mr. Daniel Hack. Probably, in towns of like importance, similar agencies will be found. Those who undertake the training of apprentices as mechanical assistants will probably be helped in their selection by visiting the technical schools of their locality, where they will see the boys at work.

If there is anything practical in what I am urging, I trust that it may soon take shape, that our younger and more earnest men may take the initiative and work for others as their elders have in time past worked for them. They will soon find material to their hand. *First*: I would suggest that they read the literature of the subject, which will readily be supplied to them, in the books and pamphlets of "the National Association for the Promotion of Technical and Secondary Education," 14, Deans Yard, Westminster, an Association that is doing splendid work for the nation, the President of which—an active one—being the Duke of Devonshire; the Treasurer, Sir John Lub-

bock, M.P.; the Secretaries, Sir Henry Roscoe, M.P., and Mr. A. H. D. Acland, M.P., and the Assistant Secretary, Mr. Llewelyn Smith. These names, I am sure you will say, are a guarantee of the thoroughness of the work done, for they have written and spoken for years on behalf of this cause. *Secondly*: By personal contact among those promoting the work, such as members of County and County Borough Councils, and local School Committees, and the members of our profession, opinion might soon be formulated, and action taken, and possibly new centres formed where needed. And I take it that the outcome should be, that those who have pupils or apprentices will do their best to induce them to attend these schools freely during the first year of pupilage—before, if possible—that the time thus spent shall not be grudged but freely given, and, as many of the classes will be held in the evening, this need not interfere with a fair amount of attention to the routine of the laboratory. The second and third year of their pupilage probably will be far more satisfactory from the special training acquired in the first. But I would like to suggest to students themselves, that in consideration of the ingenuity and finger dexterity which modern dentistry demands upon those who practise it, some of them would act wisely if, instead of ceasing at the third year the special technical training required by their curriculum, they continued it through a fourth year, which they could probably do, without expense to their family, as junior assistants. They would thus materially strengthen their power of constructive work, so very essential for the successful prosecution of their career, both at the Dental Hospital and afterwards.

It will be important, I think, to guard against any tendency to stunt the artistic faculty in our pupils, which too rigid and exclusive a manual training in exact methods may possibly induce. There must, of course, be the solid foundation, without which the imagination may disport itself in inartistic forms; but artists tell us that the mind should be led to express itself in forms which—while natural and beautiful—are yet original. And this is where the art of modelling in clay is so serviceable in giving freedom to the hand and to the imagination. I believe that a lengthened course of study in this subject will be most valuable in training the artistic faculty, without which no dentist is equal to restore the lost lineaments of a face. Mr. Ruskin tells us in "the relation of art to use" that it gives *form* to knowledge, and *grace* to utility," and that "every good piece of art involves first, essentially, the evidence of human skill, and the formation of an actually beautiful thing by it." Again, in his characteristic way, he says, "Almost the whole system and hope of modern life are founded on the notion that you may substitute mechanism for skill, photographs for pictures, cast-iron for sculpture. That is your main nineteenth century faith or infidelity. You think you can get everything by grinding—music, literature and painting. You will find it,

grievously, not so ; you can get nothing but dust by mere grinding." And when speaking on *skill*, *beauty*, and *truth* as vital elements in art, he points to a great exemplar thus : " It is impossible to find the three motives in fairer balance and harmony than in our own Reynolds. He rejoices in showing you his skill ; and those of you who succeed in learning what painter's work really is, will one day rejoice also, even to laughter—that highest laughter which springs of pure delight in watching the fortitude and the fire of a hand which strikes forth his will upon the canvas as easily as the wind strikes it on the sea. He rejoices in all abstract beauty and rhythm and melody of design ; he will never give you a colour that is not lovely, nor a shade that is unnecessary, nor a line that is ungraceful. But all his power and all his invention are held by him subordinate—and the more obediently because of their nobleness—to his true leading purpose of setting before you such likeness of the living presence of an English gentleman or an English lady as shall be worthy of being looked upon for ever." Gentlemen ! if this be the noble purpose of the artist who strives to express the individuality on canvas, how much, indeed, should it be ours when we are asked to restore the natural face ? The face is meant by nature to pourtray the mind within, but alas ! how often is it prevented from doing so by reason of the ghastly performance of the inartistic dentist.

Therefore it is, that I plead for the more special training of our boys at school and of our pupils, and I would suggest that the latter, during their last year of pupilage, might, with advantage to themselves, be introduced to our consulting-rooms when special work is going on, either in conservative, regulating, or prosthetic treatment. Especially should they be shown how to restore a toothless face by means of the plastic substances we use, and the study of a fairly youthful portrait of the patient—a plan which has proved invaluable in my own experience—for, although time will leave its traces on facial expression, according to the life, health, experience, and natural temperament of the patient, and absorptive processes must go on, still, with the original lineaments to study, it is perfectly possible—making allowance for the inevitable changes of time—to arrive at a natural result. One word of caution—beware of poor photographs, which may be very misleading. The intelligent artistically-trained student will soon understand the harmony in nature between the skin, the hair, and the teeth ; how impossible it will be to place flat characterless teeth beneath a Roman nose ; how every type of face must have its appropriate form and colour of tooth : how cases of partial absorption—the most difficult to deal with—may be frequently treated in the most artistic manner with gum enamel. Gentlemen, I have placed these thoughts before you with the hope that you and our profession generally may see the practical utility of a combined effort to bring this national attempt at the more technical education of our people to our own particular service. We may, I think, with advantage, express our

APPENDIX I.

* The County Borough of York is, for the purposes of the Local Government Act, 1888, deemed to be situate in the three Ridings of York, but there is not sufficient information to allow of the amount assigned to the Borough being apportioned between the three Ridings.

APPENDIX II.

Districts in which the Technical Instruction Acts, 1889 and 1891, are already being utilised (April 20, 1891).

Aberystwith	Darwen	Newport (Mon.)	Stalybridge
Alfreton	Derby	Northampton	Stockport
Atherton	Eccles	Northwich	Stone
Banbury	Guiseley	Nottingham	Totnes
Barnsley	Halifax	Ossett	Taunton
Bideford	Hindley	Oswestry	Wakefield
Billinge	Horfield	Oxford	Warrington
Bingley	Ivybridge	Paignton	Wednesbury
Birkenhead	Keighley	Ripon	Westmoreland (C C)
Birmingham	Kidderminster	Rochdale	Widnes
Blackburn	Longton	Rotherham	Worcester
Blaenau Festiniog	Ludlow	Salford	Wrexham
Bolton	Macclesfield	Sheffield	Yeovil
Bridgwater	Maidstone	Sherborne	York
Burnley	Manchester	Shipley	
Burslem	Middlesbro'	Southport	
Cardiff	New Mills	Stafford	

APPENDIX III.

County and County Borough Councils which have already determined to make grants for Education under the Local Taxation Act, 1890 (April 20, 1891).

Council.	Proportion.	Council.	Proportion.
Bath	All	Huntingdonshire	All
Bedfordshire	All	Kingston-on-Hull	All
Berkshire	All	Lancashire „	All
Birmingham	Part	Leeds	All
Blackburn	All	Leicester	All
Bolton	All	Leicestershire	£300
Brighton	All	Lincolnshire (Holland)	All
Buckinghamshire	All	Do. (Kesteven)	All
Burnley	All	Liverpool	
Bury	All	Middlesbro'	Part
Cambridgeshire	All	Newcastle-upon-Tyne	All
Canterbury	All	Norfolk	All
Chester (Co.)	All	Northamptonshire (Soke of Peterboro'	All
Cornwall	All	Northumberland	All
Coventry	All	Nottinghamshire	All
Croydon	All	Oldham	All
Cumberland	All	Oxfordshire	Half
Derby	All	Plymouth	All
Derbyshire	Part	Portsmouth	All
Devonport	All	Reading	All
Devonshire	All	Rutland	£100
Dorsetshire	All	Sheffield	All
Durham (Co.)	All	Shropshire	All
Essex	All	Somersetshire	All
Exeter	All	Southampton	All
Gloucestershire	Half	Staffordshire	£7,000
Halifax	All	Suffolk (East)	All
Herefordshire	£1,000	Do. (West)	All
Hertfordshire	All		

Council.	Proportion.	Council,	Proportion.
Warwickshire	All	Worcester	Part
Wednesbury	All	Worcestershire	All
West Bromwich	All	Yorkshire (East Riding)	All
Westmoreland.....	£250	Do. (N. Riding)	£2,000
Wigan	All	Do. (West Riding)	All
Wiltshire	All		

—[Published by the National Association for the Promotion of Technical and Secondary Education.]

The address was followed with interest and close attention, and at its conclusion, Mr. HENRY, in proposing a vote of thanks to the chairman, characterised the address as practical and valuable, and expressed a hope that it would soon be acted on.

Alderman RYMER, in seconding, stated that at Croydon they had taken over the Technical Schools—a fact which he particularly mentioned, because they were originally established by one whom they all respected, who left his own profession to take holy orders; he referred to the Rev. J. Oakley Coles, who, as curate of Croydon, looked on the duties of his office as not only of a spiritual but also of a temporal character. He secured the support of a number of ladies and gentlemen in establishing the schools, which prospered and had been taken over by the Town Council, forming now the Croydon Polytechnic.

The compliment was accorded and acknowledged, the PRESIDENT remarking that if he could arouse any of them in that matter by furnishing information he should be glad to do so.

Mr. S. J. HUTCHINSON, M.R.C.S., L.D.S., then read a paper on "The Constitutional Effects of retarded Eruption of the Wisdom Teeth," which we print as an Original Communication.

Discussion having been invited by the chairman, Mr. VAN DER PANT asked Mr. Hutchinson how he would diagnose cases of mischief due to impacted teeth, when such cases were unaccompanied by pain.

Mr. H. BEADNELL GILL thought it might interest members if he narrated a case of epilepsy due to the irritation of diseased teeth, in which the epilepsy had ceased upon the removal of the diseased teeth under the influence of gas. The patient, whose teeth were undoubtedly syphilitic, had had fits from infancy, and his father told him the temporary teeth had all decayed away. He saw the patient at the age of 21; the extractions were done ten months ago, and the patient had had no seizure since then.

Mr. J. E. WELCH mentioned that he had discovered some impacted wisdom teeth in the mouth of a lady 50 years of age, and who had been under medical treatment for two years. Some of the teeth were not fully calcified, but were really minus the roots.

Mr. REINHARDT asked under what condition the reader of the paper would advise the removal of the second bicuspid in cases of obstructed eruption of the wisdom teeth.

Mr. MORGAN HUGHES asked whether Mr. Hutchinson thought it necessary in all cases, where trouble arose from the upper wisdom teeth impinging on the lower gum, to extract the teeth, and whether the desired relief could not be obtained in many cases by grinding off the offending cusps, provided that the patient would stand the latter process.

Mr. OCTAVIUS FOX mentioned the case of a hard-worked East End clergyman. He was very much out of health, was partially paralysed on one side, and could not put his right hand to his head. He was unable to study or write. Mr. Fox suspected an impacted wisdom tooth. The second molar was extracted with some difficulty, as it was malplaced, with the result of complete restoration to health. In another case a lady was to all intents and purposes out of her mind from the agony she suffered from an unerupted wisdom tooth. In that case he gave relief by freely lancing the thickened gum over the buried tooth.

Mr. J. F. RYMER asked Mr. Hutchinson if he would define what he meant by the retarded eruption of wisdom teeth, because it seemed to him that it was only in recent years that these constitutional effects had been attributed to that cause, and he supposed in the future they might expect to hear of many more such effects.

The CHAIRMAN (Mr. Dennant) said that no doubt, if time permitted, they could bring forward many interesting cases out of their experience, but he was afraid he must close the discussion by calling upon Mr. Hutchinson to reply.

Mr. HUTCHINSON said that Mr. Van der Pant had asked a very pointed question, as to whether all the cases were attended with pain. In most of those to which he had referred there was no pain, and sometimes the evil was not even referred to the mouth of the patient, that was important, and added interest to that class of cases. As to the methods of treating a case of impacted wisdom teeth, of course each should be dealt with on its own merits. His answer to Mr. James Rymer's question as to what he meant by retarded eruption of the wisdom teeth, was that when a patient between the age of 18 and 25 had no wisdom teeth at all, where there was absolutely no space for the wisdom teeth, or where the six-year-old tooth not having been extracted there was evidently not sufficient room for the wisdom teeth to come through, and in other cases where the teeth were not visible because there was no space for them. In some cases where he had a distinct history of epilepsy or hystero-epilepsy, he unhesitatingly removed the second lower molar, and though he did not say that he should invariably adopt such treatment, he considered he was in many cases justified in doing so. As to the second bicuspids, in cases where a little space was wanted, he had removed the four second bicuspids in order to relieve the pressure, which he believed was the cause of the reflex irritation. As to upper wisdom teeth pressing upon the lower

gum, his experience was that when the upper wisdom tooth was cut before the lower one, it came to a lower level than the other teeth—perhaps about one-sixteenth of an inch below the second upper molar—and in these cases he was distinctly of opinion that it was better to extract the tooth than to grind the cusps, because the tooth would continue growing down, and if the gum was already irritated the radical treatment was better. Mr. Gill's was a very interesting case, though perhaps scarcely bearing upon the subject of wisdom teeth. He should like to hear the sequel—whether the young lady remained free from epileptic seizures, whether they entirely disappeared, and whether they would reappear when the wisdom teeth were coming through.

The CHAIRMAN, on behalf of the meeting, thanked Mr. Hutchinson for his paper.

Mr. HENRY called the attention of members to the Museum for the Annual Meeting, and hoped members would send in their contributions as soon as possible, and Mr. WALTER HARRISON stated that he had received some labels from Mr. Campion specially to be distributed at the meeting, which was accordingly done.

The CHAIRMAN adjourned the meeting.

THE DINNER.

In the evening the annual dinner was held at the Pavilion, under the presidency of Mr. Dennant, who was supported by Alderman Dr. Ewart (Mayor of Brighton), Mr. Smith Turner (President of the British Dental Association), Dr. Withers Smith (Brighton), and Mr. Hutchinson. Besides those present at the conference, the dinner was attended by Dr. Withers Moore (Brighton), Drs. Whittle and Verrall, Messrs. J. H. Whatford (Eastbourne), F. Blaker, Shaw, Langton, W. H. Nicholls, Baines, Allen, N. S. Williams, Penfold, R. E. Feltham, &c.

After dinner the CHAIRMAN gave the loyal toasts. These having been heartily received, the chairman slightly varied the order of the toast list to allow Mr. Whatford to propose "The Benevolent Fund" before gentlemen left who had to go by early trains.

In submitting the toast, Mr. WHATFORD said that the Benevolent Fund had been the means of saving several professional men from ruin, of providing the widows of others with a chance of making a livelihood, and of educating and apprenticing their children. Such a noble work required many annual subscribers, and he hoped that many members of that branch would individually contribute a yearly sum to the fund.

Mr. HUTCHINSON, in reply, said he had been on the committee of the Benevolent Fund since its establishment, and if the work of the past was to be equalled in the future, it could only be by the help of the Society and all its members. On behalf of the committee he thanked them for the five guineas voted that day. He desired to express

the gratitude of the Committee for the liberal donations of the different branches at their various local meetings. The box was then sent round on behalf of the fund, and the chairman afterwards announced, amid applause, that £8 10s. 6d. had been collected.

Dr. WITHERS MOORE, J.P., a past-president of the British Medical Association, in proposing the toast of "The British Dental Association and Southern Counties Branch," referred to the identity of the proceedings of the Association with those of the Medical Association. He saw that one of the objects of the Association was to raise the standard of good feeling among the members who constituted it. Speaking from some experience in the kindred Association he could say that such a gathering as that was not without importance, not merely for the brain-sharpening process which resulted from the speeches, but because a gathering at the social board rubbed off the little animosities incidental to every profession. When men such as their chairman occupied those prominent positions it was an encouragement to younger men to pursue the same line of rectitude and high-minded conduct, that they, too, might attain such proud positions. He hoped that the chairman might spend many years in the service of the people of Brighton, that that Association would flourish, and that the suffering poor of England would always find in the members ready help in time of need.

Mr. SMITH TURNER responded, congratulating the members on the position the Association occupied after a period of fourteen years. He was satisfied that it was a progressive Association. Their first object had been to firmly establish it—which was an entirely educational work. They had much to do in that way to educate themselves, to teach themselves to realise their position as a profession—for it was an entirely new position—and so to endeavour to weld themselves into a body of men who would act and think as nearly as possible together for the weal of the community and the profession. To a great extent they had succeeded in doing that. Another duty they had to perform was to educate the public, for they all knew that hitherto the public had not regarded dentists as worthy of consideration. Now, they looked for the regard of the public because they wished to treat them in a professional way. The dentists had also to educate the medical profession.

The presence of physicians there showed that in a great measure they had succeeded. They had to fight the medical profession too at one time, for when it was attempted to get the Dental Bill through Parliament it was opposed by the *British Medical Journal* and the *Lancet*. He did not think they were opposed individually by members of the medical profession, but collectively in their journals. It was what they (the dentists) expected, for they were making a large claim, and, as most people were who made a public claim, they were very much misunderstood. There was a fear that they would

usurp the functions of the medical man, that they would be a kind of half-licensed practitioner who would take away from him those whom he felt he had a right to claim as his patients. He thought they had shown the medical profession that there were no grounds for such fears as they entertained, but that the object of the dentists was rather to assist them in promoting and preserving the health of the community than intruding on their special functions. They had so far succeeded in establishing that at the last annual meeting when the toast of the "British Dental Association" was proposed by Mr. Ernest Hart, the editor of the journal of the British medical profession. That pointed to a certain amount of success on which they could congratulate themselves. The speaker then referred to the more ready way in which the younger members now came forward to work on behalf of the branches, and to the possibilities which Mr. Dennant had foreshadowed through the advantages of the technical education, and said he thought the medical profession must admit that the dentists had justified the position they had sought to occupy as a profession. They had followed a very moderate curriculum, but he could say that there was no medical man at the time he took his degrees or diplomas to enable him to pursue the course of a general practitioner, so well equipped to carry on the practice of his profession as was the dental student who secured his diploma from the College or from any of the licensing bodies. The dental student was literally superior, in a general way, to the man who had been in the profession for twenty or thirty years. He did not say his judgment was matured to the same extent, or that his opinion was so valuable, but his power to execute the work put before him was equal, and in some cases superior, because he had all the vigour and elasticity of youth to aid him. He was gratified with the recognition they were receiving from the medical profession, and with the way the toast had been proposed and received by representatives of it that night.

Mr. Dennant had been one of the organisers of the Benevolent Fund, and with Mr. Oakley Coles had drawn up the bye-laws, and had also served on its first committee as its vice-chairman.

Mr. DENNANT thanked Dr. Withers Moore for his kind allusions to himself, and said he was delighted that he had such a grasp of the views and objects of the Association. He re-echoed the words of Mr. Smith Turner, and said that the branch was anxious in all its operations to support the aims of the Association. They heard certain reflections from outside—not from the medical profession, but from their own people—that the branches were not representative, that the wrong men came to the front, and so on. That was undoubtedly the weak point in all Associations. He was anxious to see a little manly fortitude, and a determination to stand by the men who had led them so well hitherto, and who would continue in the same way. With regard to that branch, it had been a great pleasure to receive them.

The CHAIRMAN announced that several medical gentlemen were unable to be present, including Mr. Hodgson, who would have responded to the next toast.

Alderman RYMER proposed the "Medical Profession," whose services, he observed, could not be over estimated. From the cradle to the grave they had to look to their medical friends for advice and assistance, which were ungrudgingly bestowed to the rich and the poor. He referred to the interest some of the medical profession had taken in the Association from its commencement, especially mentioning the late Dr. Alfred Carpenter, a distinguished member of the British Medical Association, whose loss they all deplored. It was a peculiar pleasure to him to see the medical profession so well represented, and especially to meet the first magistrate of the town, knowing that he was a member of that noble profession.

Dr. WHITTLE, in responding, also referred to the cordial relationship between the two professions, which he hoped would be maintained, and which was of the very best kind, having an advantage even over that relationship which obtained amongst kindred, of being free from rivalry and jealousy.

The PRESIDENT proposed the toast of the "Mayor and Corporation of Brighton," remarking on the enlightened policy which they had pursued for many years, acknowledging their kindness to the Association, and stating that he knew of no one who had influenced the conduct of the council for good more than the worthy Mayor.

The MAYOR, in reply, after returning thanks for the reception accorded him, and expressing his pleasure at meeting the members of the branch, asked their attention to a few remarks from his position as Mayor of Brighton. The Corporation of that town, like every other governing body, was a mixed one, but, taking it as a whole, it was one of the most enlightened and one of the best town councils in the country. They had only to look at Brighton to see the great work which the council had accomplished.

"The Visitors" were cordially toasted on the proposition of Mr. REDMAN, and on their behalf Dr. T. JENNER VERRALL, hon. secretary, South Eastern Branch of the British Medical Association, replied.

The PRESIDENT then stated that their comfort that day had been materially enhanced by the personal exertion and organisation of the hon. local secretary, whose health he warmly proposed. Personally, he said, he was very much obliged to Mr. Harrison for making his path so easy as it had been. He had spared no effort to make the gathering successful, and the cordial way in which they had received his name showed that they fully acknowledged his services.

Mr. HARRISON, in reply, said that what he had done had given him the greatest pleasure, and that he had received ample assistance from the president and the local committee. It was the third visit of the Association, in one form or another, to Brighton, and therefore a

matter of anxiety to the president and himself that they should keep up the previous record, it had therefore been pleasing to them that the day had been so enjoyable.

Mr. VAN DER PANT proposed "The Ladies," and shortly after the proceedings ended.

The company were very delightfully entertained at intervals by the songs of Miss Edith Welling and Mr. C. T. West.

Eastern Counties Branch.

The Annual General Meeting of the above branch was held at Cambridge, on Wednesday, June 22nd, when the President, G. Cunningham, Esq., took the chair.

Mr. W. A. RHODES, the hon. sec., read his report as follows:—

MR. PRESIDENT AND GENTLEMEN,—Your Council are not able to report, as far as members are concerned, a successful period for the branch covered by the year that has just elapsed. They regret that two members have been struck off the list of the Eastern Counties branch owing to non-payment of subscription. One has retired from practice and from membership of the British Dental Association. Two new members have been elected, so that the branch numbers one less than at this time last year.

There is still a considerable number of dentists in the Eastern Counties district eligible for membership of the British Dental Association. It is much to be regretted that the indifference cannot be broken down, and that more of them cannot be induced to become members of that Association. At the same time, large towns are few and far between in this district, and under the most favourable circumstances this branch can never become a large one.

The Annual Meeting held at Peterborough, under the Presidency of Mr. Payling, was of a most successful character.

It was recommended at the Peterborough meeting, that an attempt be made to hold an additional meeting in mid-winter to that of the Annual Meeting of this branch. It was however found, that owing to the severity of the winter, and the long distances members would have to travel in order to attend a meeting, that a sufficient attendance could not be secured in order to make it a success. With the consent of the President it was therefore abandoned.

It will be remembered that a discussion took place at Peterborough, as to the advisability or otherwise of admitting Associates of the branch. It will be seen on perusal of the report of the Midland branch, whose meeting was recently held at Liverpool, that in their large and populous district there were only four who had been elected associates, of these two had failed to pay any subscriptions. It would therefore appear that the matter is not of sufficient importance to be worth the consideration of a small branch like this.

There will be a change in the order of procedure at the Annual Meeting of the British Dental Association in 1893, the new President taking the chair at the commencement of proceedings.

With the concurrence of the retiring President, Mr. Payling, this order of proceedings has been adopted at this meeting

It has been decided to give every member of the Association, whether present at the annual meeting or not, an opportunity of voting for candidates for the Representative Board.

It is desirous that all members of this branch will make use of the opportunity, and that they will send in their voting papers in good time.

At a meeting of the Council held in March, it was decided to support the proposition before the Representative Board, that branches should have the power to elect, not merely nominate, their representatives, as at present.

At the conclusion of the president's address, Mr. Lennox gave a demonstration on "Fusible Metal, its uses in Operative and Mechanical Dentistry." The uses to which Mr. Lennox put this medium were followed with the closest observation by an appreciative audience, who expressed their pleasure by giving at the conclusion of the demonstration an enthusiastic round of applause. The president gave an "Exhibition and Demonstration of 'Vitrumite' as an adjunct to Æsthetic Dentistry." "Vitrumite" is the name he has given to his low fusing continuous gum. Pieces were prepared and fixed before the audience. The president also showed and worked an ingenious little furnace used in tinting artificial teeth. The imitations of fitted teeth were acknowledged by all to be exceedingly good.

Mr. S. A. T. COXON demonstrated with his apparatus for prolonging the anæsthetic effect of nitrous oxide. The patient provided did not fully test the efficacy of Mr. Coxon's apparatus, the necessary extractions by Mr. Rhodes being completed in about one minute, but he claims that a patient can be kept fully anæsthetised from eighty seconds to three minutes by its aid.

Mr. FENN COLE showed a model of a superior maxilla, a case of fracture, and it was interesting in that time being limited, fusible metal suggested itself as being the handiest material with which to make a splint. The case made a quick recovery, and the fusible metal plate was handed round for inspection.

Mr. W. H. HOPE and Mr. A. E. DIXON showed some curious abnormalities of teeth.

At the conclusion of the proceedings a unanimous vote of thanks was accorded to those who had contributed to what was generally conceded to have been the most interesting and instructive meeting the branch has yet held.

THE ANNUAL DINNER.

The Annual Dinner was held in Downing College Hall in the evening. The President, Mr. George Cunningham, M.A., was in the chair, and the guests included Sir James Crichton Browne, Mr. J. Smith Turner, Professor T. Clifford Albutt, Dr. Bradbury and Dr. Hickson, M.A.

The PRESIDENT proposed "the Queen," and afterwards "The Prince and Princess of Wales, and the rest of the Royal Family," and "The Army, Navy and Reserve Forces," for whom Lieut. CRICHTON BROWNE responded.

Sir JAMES CRICHTON BROWNE said it was a very simple duty indeed, that of proposing "Success to the British Dental Association and its Branches." The Association, he had no doubt, was performing a very important work for their profession. It was conferring upon it organisation and solidarity, eliminating from it its worse elements, giving it a distinguished social position. It was conferring a great benefit upon the public—it was a great protection to the public—and it was promoting, he understood, in various ways, scientific research and the improvement of the methods employed in the practise of their profession. Their Association was still young, but it was exceedingly vigorous. It was represented by various branches throughout the country. They had had a sample of one of those branches that day. For his own part he could only say if all the branches were as enthusiastic and active and scientific in their methods as the Eastern Counties branch their Association would certainly be a very useful one. There was a great work for them to do, in impressing upon the public the importance of the care of the teeth, particularly the care of the teeth of the young—the subject which had chiefly engaged their attention that day. Mr. Turner, as well as their President and himself, had followed the example of their remote ancestors in coming southwards, and they were not to be blamed for it. He could truly say he had no intention of returning, and for the sake of their Association he hoped Mr. Turner would remain amongst them, and in spite of all temptations he would remain an Englishman. He had done great service to their Association, and he begged as an outsider most cordially to propose success and prosperity to their Association, and to couple with that toast the health of their President, Mr. J. Smith Turner.

Mr. JAMES SMITH TURNER, President of the British Dental Association, in response, said it was a great satisfaction to him to be amongst clansmen and kinsmen in that hall, and he had to thank most sincerely Sir James Crichton Browne for the kind and generous manner in which he had proposed the toast, and he made his bow to his friends in that company who had received that toast so heartily. He could not think why people in Cambridge should take such an interest in their British Dental Association. It could not merely be because it was an Association, because Cambridge was full of clubs and

societies and unions. The place was packed with associations. It could not be on account of its youth. Their Association was a young one and he was sure half the troubles in Cambridge arose through youth. Therefore they must lay the flattering unction to their souls that they were being recognised for what they had done and what they intended to do. It was highly satisfactory to see that the work which they had been trying to do for so many years had become focused and was beginning to tell in their behalf and on behalf of the cause they had so nearly and dearly at heart. When first he interviewed Sir John Tomes regarding this Association, he said, "I should like to have an association of the kind. I think it is wanted. I think it will do good. But I shall have nothing to do with it if it is not conducted on strictly professional lines. There must be no shouting, no boasting, no self-assertion. Your work must be gradual and conducted in a gentlemanly manner." He did not think there was likely to be much beating of the big drum or clashing of cymbals in an association where Sir John Tomes was the leading man, and it was on that account he felt so much satisfaction with the progress they were making in the matter that had occupied their attention that day. It was some years now since a very modest paper was read in a very modest way at the International Medical Congress in London by Mr. Gaddes, a paper which had for its subject the attention to the teeth of the rank and file of the Army and Navy. There was not much said about that paper at the time, but like many other good things that have not been taken much notice of at first it has borne fruit. Following that a paper was read by Mr. W. H. Fisher, of Dundee, on Compulsory Attention to the Teeth of School Children. That was a very great title, and he argued that as education was compulsory and people were held responsible for the education of their children so ought they to be held responsible for the condition of the children's teeth. Then came their indefatigable President, Mr. Cunningham, with his scheme for inducing the Government to take up some course of action in reference to the teeth of the rank and file of the Army and Navy and the Civil services, including, he believed, the police and prison servants and prisoners, also the training ships and all such institutions. That was an advanced scheme, but that day he considered they had made one of the greatest strides they had yet taken towards attaining their object for they had secured the patronage—he was not using the word offensively—the patronage, attention and support of a gentleman whose name was well-known in public as an inquirer into various phases of their social life and who had so conducted those inquiries that they were likely to lead to many beneficial results. When that gentleman had taken up their cause he thought they might look forward to better progress than ever. They had made some progress it was true and there were now two gentlemen appointed to look after the teeth of certain sections of the Navy,

and those appointments had been made by the Director-General of the Medical Department. This was the thin edge of the wedge. One of the gentlemen, who had been appointed, was a qualified dentist as well as a naval surgeon. The other gentleman, he believed, had been appointed because in some way or other he was possessed of a *burring engine*, and although it was a qualification they would not think much of themselves, they must be content with having got the thin edge of the wedge in, but he thought neither the Government nor the public would long be contented with such a meagre recognition of what they desired. The Association he hoped, would go on as Dr. Stoddart, the great educational authority said, "hammering in the same nail." They must hammer on until they had driven in the nail to the other side of the deal. He hoped also the Association would go on in accord and in the good fellowship which existed amongst them and that the Eastern Counties branch would flourish.

Mr. J. HOWARD MUMMERY proposed the toast of "The University and its School of Medicine." He regretted, he said, he could not speak with that knowledge and affection which every old university man felt for his alma mater, but he could speak with the pride of an Englishman for this noble seat of learning, which had sent forth so many of the great men in their own and past times. Those outside were very apt to look upon the University as a close community, where traditions and customs ruled the day, and where narrow views on many things were taken; but no one could look about Cambridge or study its methods at the present time without feeling that in every department new light had been infused into the educational methods. In conjunction with the sister University of Oxford, the extension lectures had spread more knowledge throughout the kingdom, and by granting University education to women, Cambridge had shown the desire to advance with the times, and they trusted that the higher education of the classes would not lead to any of those disastrous physical results which had been so ably pointed out to them. The great laboratories of experimental research in physics, chemistry and physiology, with their leading features, showed that Cambridge was in advance in the movement of education, in which not only the mind was trained but the hand and the eye. The Medical School at Cambridge had now a world wide reputation, and he thought nowhere could better education for a medical man be obtained than in this University. He had to couple with the toast the name of the Regius Professor of Medicine, Dr. T. Clifford Allbutt.

Professor T. CLIFFORD ALLBUTT, after thanking the proposer and the company, said he felt that the Medical School of Cambridge had now obtained a position of very great importance. In the various departments into which the medical profession was now necessarily divided, the Medical School of the University of Cambridge had taken

a position which had given it its own special tone. He ventured to trust that that tone might be of the greatest possible breadth. The time had gone by when in both Universities certain special studies were thought more of than the broad wide field of education, and he thought in that way the revenge which always followed a narrow programme fell upon those Universities. But although they had widened their programme, they had not lowered their standard, but had given a new vitality and a higher conception of other studies. So far they could withhold their sympathy from those who thought the democratic influx would lower the tone of the University. He thought the facts had shown that that was entirely unfounded, and he did not believe they needed to apprehend that those consequences would be involved in the future. He thought they would agree with him that the study of medicine was not one of the least purposes for which the University existed. No doubt they could not exist as a nation at all unless they had an army and a navy, nor could society hold together without the profession of law; and he thought in the next place they could claim that it could not be preserved without the profession of medicine. His very old friend, Sir James Crichton Browne, a friend of thirty years' standing, had given them an address that afternoon which was one of the most striking and brilliant addresses which had been given in their profession or perhaps any other profession. Sir James Crichton Browne had been not only a great worker himself, but he had been largely a cause of work in others, and he (the speaker) would have been a far more humble individual than he was, had it not been for his stimulating friendship and the impulse which it gave him. And so he might say with respect to a very large number of other men, a great deal of whose best work was instigated or largely encouraged by their guest of that evening.

He had been for a very great number of years a member of the British Medical Association, but so far as he was aware, there had not been a section of dentistry at any of their meetings. He did not know how that was, but he did not think they ought to rest until that was rectified. He ventured to suggest to their President and the President of the Odontological Society, that they should make representations so that at the meeting of the British Medical Association in some years they might be able to discuss some such exceedingly interesting subjects as those discussed that afternoon. He thanked them for the exceedingly kind manner in which they had received the toast.

Dr. J. Walker proposed the toast of Downing College, to which, in the unavoidable absence of the Master, Dr. Hickson, one of the fellows responded.

Mr. W. A. RHODES proposed "Our Guests," and observed that whatever might be said of the Eastern Counties branch he did not think it could be charged with want of hospitality. They had the

pleasure and the privilege that night of having with them guests of whom any association might certainly be proud. After enumerating the many claims of their guests upon their consideration, Mr. Rhodes concluded by extending to them, on behalf of the Eastern Counties branch their heartiest welcome.

Dr. BRADBURY, in responding, said he was sure he was only expressing the sentiment of the other guests present when he said how very much obliged they were to Mr. Rhodes for the kind way in which he had proposed their healths. It was always a great pleasure to him to meet members of other professions, and particularly of the dental profession, considering that his own profession was so intimately associated with dentistry. There was hardly a day of his life passed in which he did not have occasion to advise one or other of his patients to go to the dentist, and these visits were usually attended with most beneficial results. He was sure the more they saw of their profession the more they felt the need of their dentists, for, with the exception of infectious diseases, there were very few diseases which were not connected with the teeth. The dental profession in Cambridge was appreciated very much more at the present time than it was when he first came here, and now they had shown their appreciation of dentistry by appointing as dental surgeons to the hospital two members of their profession.

Sir JAMES CRICHTON BROWNE proposed the toast of "The Chairman," which was drunk with musical honours.

Mr. CUNNINGHAM having replied, Mr. HOPE, of Wellingborough, gave a short entertainment *à la Corney Grain*.

Sir JAMES CRICHTON BROWNE, M.D., LL.D., F.R.S., Lord Chancellor's visitor, delivered the following address :—

GENTLEMEN,—It is with unaffected diffidence, and in compliance with the pressing solicitations of a valued, if somewhat exacting friend, that I occupy the chair this afternoon, and presume to preside over a meeting of a body of men at whose feet I should sit for edification in the subjects that are to be considered here. But whatever I may lack in knowledge of the topics which are to engage your attention, I am not behind you in lively interest in them, for since I read the paper of Mr. J. Smith Turner on "The Condition of the Teeth of School Children," communicated to the International Congress of Hygiene and Demography in London, I have realised the importance of the inquiry which he described, and have sought further information bearing on it. Some special investigations which I have myself undertaken from time to time into our present educational systems, in their physiological aspects, have prepared me for the disclosures which you are making, and I need scarcely say that I fully accept the conclusions arrived at in your first collective report, and am in complete sympathy with you in the recommendations offered in that report, and during the discussions of your Association, which have taken place upon it.

That report is, it seems to me, a very grave and significant document, revealing a state of matters for which even those most familiar with dental defects were scarcely prepared, for it is surely startling to find that amongst 1,861 children under twelve years of age, there were only 104 with normal or perfect dentures, that is to say, made up of sound teeth, requiring neither filling nor extraction; that only 26 per cent. of infants at five years of age have teeth free from caries, and that every 1,000 children at twelve years of age have amongst them 2,543 teeth affected by caries. Almost as startling as the report itself, are some of the statements of independent observers, by which it is supported, such as that of Dr. John Livey, who, after examining the teeth of 4,000 children attending schools in Bolton, said that during the course of this inquiry he could not help observing that caries is extremely common, and that indeed it is quite the exception to find a perfect set of teeth, more especially in children over ten years of age, such as that of the dental officer to the Police Orphanage at Twickenham, who said that not more than one child in three enters the Orphanage with sound teeth; such as that of Mr. Fisher, of Dundee, who said that amongst 400 boys on the training ship *Mars*, in the Firth of Tay, drawn from a part of the country where bone and muscle are of the best description—boys who are kept clean, well housed, clothed and dieted—he found only eighty sound sets of teeth; or such as that of Mr. Brunton of Leeds, who affirmed that 90 per cent. of the teeth in that town are bad. The fact that 10,000,000 of artificial teeth are used in this country annually, although of course only a small proportion of the population can procure these articles of luxury, brings home to us the truth that dental mortality is heavy in these days, and that the gaps in dental circles that require filling must be big and numerous.

Putting aside for the present the important information you have supplied regarding other dental abnormalities and diseases found in school children, supernumerary teeth, honeycombed teeth, syphilitic teeth, fractured teeth, enamel defects and fistulæ, I wish to confine what I have to say this afternoon to caries, the most ruinous of dental maladies, not only in childhood, but at every epoch of life, and if in speaking of it I should utter what are to you truisms, or travel over ground with which you have long been familiar, I must crave your kind indulgence, which I am sure you will extend to me when you remember that my acquaintance with the literature of your speciality is necessarily very limited. Even the crudities and blunders of an outsider, however, are not without instruction to the expert, and from my stumbling steps you may perchance gather some hints to expedite your own advance.

Now, as regards dental caries, it can be scarcely necessary that I should rehearse to you the evidence that has been adduced to prove that it is now far more prevalent in this country than it has ever

hitherto been, and that its ravages are more widespread and serious in the present than in any former generation about the dental history of which we have records. You will probably agree with me that that evidence is conclusive, and indeed I take it that your own observations on the condition of the teeth of school children make it certain that dental degeneration has now attained an ascendancy that it did not, in former times, possess. It is impossible to believe that the British Empire would have become what it is to-day if, amongst those hardy Norsemen, who pushed up their keels on the shore at Ebbsfleet and entered upon the making of England, there had been only one sound set of teeth in every ten ; or if, amongst our ancestors who have extended our dominions by land and sea, and won for us our civil and religious liberties, by struggles in which personal vigour and endurance counted far more than they do in the highly scientific and explosive warfare of modern times, there had been all but universal rottenness of the teeth before adolescence ; depend upon it that in the England of the past the teeth were not so frail or so troublesome as they are to-day. The skulls dug up on the battlefields of England grimly and silently attest the fact, and the very existence of your profession in its present magnitude in the country bears witness to it. I am not going to argue that sound teeth are the passports to power, or that biting and grinding capacity has determined the course of history, but this I will maintain, that no nation has ever climbed to pre-eminence on carious teeth, or can retain its pre-eminence when its teeth are no more, and that it behoves a conquering people jealously to look to its teeth, and to keep them, not less than its weapons, bright and sharp. If I might alter Goldsmith slightly I would declare—

Ill fares the land to hastening ills a prey,
Where gums accumulate and teeth decay.

It is not an edentulous race that will finally possess the world.

When we inquire into the causes of the greatly increased prevalence of dental caries in modern times, we at once perceive that it is an instance of those imperfect adjustments, which we often see in living beings in their passage from a natural to an artificial, and from an artificial to a more artificial, condition of existence. All advance in organic evolution involves danger and sacrifice, and in highly complicated organisms an advance in one direction often means retrogression in another, in which the power of adaptation is tardy, or where compensatory measures have not been adopted. The resources of civilisation are more ample, nimble, and varied than those of dentition, and so it has come about that the teeth have not been modified in accordance with the altered habits of life of modern times, especially of the nineteenth century, and have not yet been adequately protected by specially devised safeguards.

But in examining into the causes of the increase of dental decay

which we see around us, we can go beyond a mere general statement of this kind, and indicate, I believe, some of the specific conditions of modern life which are mainly responsible for it—and some of these specific conditions, as they present themselves to my mind, I venture with great deference to submit to your consideration.

In the first place, then, it seems to me, that the greater prevalence of dental caries in these days is probably in some measure dependent on the softness and pulpiness of the food on which we for the most part feed. Hardness and toughness of food—and the food of savage and semi-civilised races is generally hard and tough—involve vigorous mastication, and vigorous mastication involves a copious flow of saliva, and a copious flow of saliva involves cleansing of the teeth and gums, to which the active movements of the lips, tongue, and cheeks during mastication largely contribute. But softness and pulpiness of food—and the food of all civilized races tends to become more and more soft and pulpy—means comparatively little mastication, and little mastication means a diminished flow of saliva, for the far-fetched condiments of refined cookery do not stimulate the salivary glands to anything like the same extent that ordinary sapid substances with energetic masticatory movements do, and a diminished flow of saliva means diminished cleansing of the teeth, which are at the same time imperfectly scrubbed by the feeble movement of the parts engaged in mastication, and so it comes about that when the food is soft and pulpy, particles of it lodge in and about the teeth and gums, to an extent that is impossible when it is hard and tough, and afford a nidus for those bacterial growths, which alike by the decomposition they set up, and by their direct attacks, are so inimical to the integrity of the teeth. It has been shown that the jaws and the muscles of mastication are larger in savages than in civilized races. I have little doubt it will be found that there is some atrophy of the parotid, sub-maxillary and sub-lingual glands in the latter as compared with the former, and then it will appear that tooth brush and dentifrice are merely auxiliaries to a natural apparatus, which has to some extent dwindled by disuse.

In the second place, I would name to you, as a specific cause of the increase of dental caries, a change that has taken place in a food stuff of a particular kind, and of primary importance. I mean bread, the staff of life, from which, in the progress of civilisation, the coarse elements—and the coarse elements consist of the outer husks of the grains of which it is composed—have been eliminated. In as far as our own country, at any rate, is concerned, this is essentially an age of white bread and fine flour, and it is an age therefore in which we are no longer partaking to anything like the same amount that our ancestors did of the bran or husky parts of wheat, and so are deprived to a large degree of a chemical element which they received in abundance, namely, fluorine. The late Dr. George Wilson showed that fluorine is more widely distributed in nature than was before his

time supposed ; but still, as he pointed out, it is but sparingly present where it does occur, and the only channels by which it can apparently find its way into the animal economy is through the siliceous stems of grasses and the outer husks of grain in which it exists in comparative abundance. But analysis has proved that the enamel of the teeth contains more fluorine in the form of fluoride of calcium than any other part of the body, and fluorine might, indeed, be regarded as the characteristic chemical constituent of this structure—the hardest of all animal tissue, and containing 95.5 per cent. of salts against 72 per cent. in the dentine. And, as this is so, it is clear that a supply of fluorine, while the development of the teeth is proceeding, is essential to the proper formation of the enamel, and that any deficiency in this respect must result in thin and inferior enamel. If then in our dislike to grittiness, which has run parallel to our addiction to soft and succulent foods, and in our preference for white bread and fine flour, we have cut off the main source of supply of fluorine to our systems, it is not difficult to understand how we have thereby incurred comparatively feeble and unprotected teeth, with a diminished power of resistance to adverse influences, and peculiarly liable to decay. For the dense close-fitting prisms of the enamel are to the tooth what its armour plates are to a modern ship of war, and if they are easily penetrated, corroded, or worn away, then the fate of the dentine within is sealed. I think it well worthy of consideration whether the re-introduction into our diet, and especially into the diet of child-bearing women and of children, of a supply of fluorine in some suitable natural form—and what can be more suitable than that in which it exists in the pellicles of our grain stuffs?—might not do something to fortify the teeth of the next generation.

In the third place, I would suggest to you, as a cause of increased dental decay in our population, the high nervous tension of our times, and the impaired nutrition which that high tension frequently entails, either hereditarily or by its operation on the individual life. It is everlastingly true that when the parents have eaten sour grapes the children's teeth are set on edge—that when the parents have been prodigal of their strength, the children are impoverished in constitution. Intense vitality of the conjugating spermatozoon and ovum is necessary to give the new being a fair start on its career, and to impart to it an impulse which will carry it and all its tissues steadily through the perils and vicissitudes of development and maturity to the gentle declivity of timely old age. But such intense vitality of the spermatozoon and ovum is not to be expected when the parents who produce them are labouring under nervous exhaustion. And so there are now vast numbers of human beings, the offspring of neurotic or neurasthenic parents, sent "into this breathing world" "deformed, unfinished," and "scarce half made up," whose teeth are delicate and destined to premature decay. The gastro-intestinal mucous

membrane of the embryo, from which the pulps and sacs of the teeth originate, may in such cases be supposed to have been wanting in formative energy, or the trophic influence from nerve centres, which is exerted, if not during the papillary and follicular, certainly throughout the sacular and eruptive, stages of dentition, may be presumed to have been defective. It is to be remembered that as early as the fourteenth week of embryonic life, when the membrane of the dental groove with its adherent follicles and their pulps are stripped off, there may be seen dental nerves running along under the follicles and distributing twigs to each of them, and it is certain that from this time till the completion of dentition at the twentieth year the development of the teeth is more or less under nervous control. It is not to be expected, I think, that robust teeth will grow and come forth in order due in children who are kept in a state of nervous excitement or overstrain, and while I am quite satisfied that inherited tendencies are more potent than personal experiences in inducing the dental debility which we encounter in nervous children, I still cannot acquit our modern system of education with the overpressure into which it so often runs, of some share in its causation, directly through interference with the growth and eruption of the teeth, as well as indirectly through interference with digestion and secretion, and the consequent establishment in the mouth of conditions favourable to dental caries. It is, I think, corroborative of the view that nervous tension contributes to dental caries, that your statistics show that, as regards caries, better class schools were in a worse condition than those in which lower class children are educated, for better class children have, of course, more care bestowed on their teeth than those of a lower class, but they are at the same time of more nervous temperament, and are more subjected to nervous strain.

With the view of ascertaining how far dental defects and decay are associated with arrested development of the nervous system, I carefully examined, with the kind assistance of Drs. Shuttleworth and Telford Smith, the teeth of 113 idiots and imbeciles in the Royal Albert Asylum at Lancaster, on the 7th of June. I cannot here, of course, enter upon any details or give even a general summary of the observations made, but I may tell you that there was not amongst these 113 idiots and imbeciles, of an average age of 17 years, one denture perfect or approaching perfection. Dental caries was present in every case save three, and in one of these three cases six teeth had been removed, and in another two, so that there was only one boy out of 113 idiots and imbeciles who did not present evidence of past or present dental caries, and in him the teeth were crowded, displaced and pitted. In a vast majority of cases the caries might be described as galloping, and had been widely and deeply destructive, so that the mouths of these blighted creatures presented a lamentable spectacle, and might, without hyperbole, be addressed by the dentist

called in to examine them in the language used by Romeo when breaking into the vault of the Capulets :

“Thou detestable man, thou womb of death,
Thus I enforce thy rotten jaws to open.”

And besides caries there were many other dental defects noted in the weak-minded inmates of the Royal Albert Asylum. There were overcrowding and displacement of teeth in seventy-five cases, sometimes to such an extreme degree as to produce two distinct rows of incisors in the upper jaw, the central incisors in front and the lateral incisors behind, and this overcrowding depended upon contraction of the jaws, the upper jaw being V-shaped, semi V-shaped, or saddle-shaped, and invariably associated with narrowness and arching of the palate, was three times more frequent in girls than in boys. There were notching, pitting, and honeycombing of the teeth in eighteen cases, and these conditions were five times more frequent in boys than in girls, while in almost every case there were observed either natural absence of a tooth or teeth, delayed eruption of a tooth or teeth, dwarfing of teeth, or malformation of one or more teeth, while in a considerable number of cases there were hypertrophy, hyperplasia and distortion of the alveolar processes and gums. Without entering on further particulars, I would say that my limited survey of the teeth of idiots and imbeciles has convinced me that much valuable information will be derived from a systematic study of the developmental irregularities of the teeth and jaws which abound amongst them—a study which has been touched on by Cartwright, Ballard, Ireland, Langdon Down and Oakley Coles, which was seriously undertaken some years ago by your colleague, Dr. Talbot, of Chicago, who did not, however, push his inquiries very far, but limited them to maxillary modifications. It is obvious, I think, that the condition of the several teeth in the weak-minded will sometimes guide to the particular point in the evolution of the nerve centres when arrest in development took place, while the distribution of caries amongst their teeth will throw light on some obscure questions in dental pathology. It is obvious that certain types of teeth are characteristic of certain varieties of mental defect, and it is probable, therefore, that certain less-marked but still perhaps distinctive dental characters are associated with certain mental qualities in those who are not weak-minded, and that dentistry might afford glimpses of insight and prescience such as palmistry can never attain to. It is obvious above all that cerebral abnormalities, congenital and developmental, have associated with them dental malformations and degenerations of an exceedingly marked kind, and it is probable, therefore, that cerebral disorders in the young, when dentition is still incomplete, may impair the soundness of the teeth, and so, as I have said that the nervous high tension of the age, which is so apt to induce cerebral disorder, may be a contributory cause of the increase of dental caries in these days.

In the fourth place, I would mention as a possible cause of the increased prevalence of dental caries amongst us, the growing aggregation of our population in large towns, for this aggregation entails for old and young higher nervous tension than country life, a greater liability to anæmia and a low standard of health, and also to several zymotic and constitutional diseases, which, not less than general reduction of health and nervous exhaustion, leave their stamp on the teeth in impaired nutrition. But, more than this, the conditions of town life conduce especially to those forms of dental failure which depend on bacterial onslaughts. Wherever human population is thick on the ground, bacterial population is thick in the air, and in our crowded cities we have a crowded atmosphere, contrasting unfavourably with the pure air of the country, and conveying constantly into the mouths of men, women, and children volumes of parasites, pathogenetic and non-pathogenetic. The mouth is indeed veritably a menagerie of tame and wild bacteria. Miller found twenty-two kinds of bacteria in the mouth, of which sixteen brought about an acid reaction when cultivated in beef extract peptone, while four produced an alkaline solution, and only two a neutral one. Six organisms are invariably found in the human mouth, almost invariably another three or four, and during epidemics, or when there has been contact with persons suffering from various diseases, the organisms associated with these diseases and epidemics are frequently detected in the mouth, mingling with its habitual inhabitants. The frequent presence of such organisms in the mouth, as well as others of a still more virulent type—such as that of sputum septicæmia, which is harmless until there is, from some cause, set up congestion or œdema of the lungs, when it immediately induces croupous pneumonia or gangrene, or that of acute septicæmia, or the streptococcus, aureus and albus—seems to make it incumbent on the dentist to practise thorough antiseptic cleansing of the mouth before even trifling operations are undertaken in town, at any rate, for suppurative symptoms and chronic poisoning and of pyæmia have followed even upon the extraction of a tooth and lancing of the gums.

But whether indigenous or of occasional and foreign intrusion, the bacteria which haunt the mouth find there conditions eminently suitable to their rapid multiplication. The mouth is indeed an incubating chamber specially prepared for bacterial cultivation. In it the proper temperature is steadily kept up; the proper degree of moisture and aeration is maintained, while proper nutriment is liberally supplied in particles of food which adhere to the teeth and gums, in the desquamating epithelium, in the sugar resulting from the transformation of starch by the action of ptyalin, and in the substance of the teeth themselves. In sections of decalcified teeth stained with fuchsin and vesuvin, bacteria are often seen scattered irregularly through the dentine when it is undergoing decay or softening, and although these

bacteria may be only playing a secondary part, it is to be borne in mind that it is an important part, and that it has only become possible because other bacteria have taken the initiative. It is when the enamel is removed that bacterial inroads on the dentine become practicable, and the removal of the enamel is effected by lactic acid and the peptonising enzyme which other bacilli produce. Miller found in his experiments on artificial decay, that as long as the enamel was entire, acids had no power to injure the dentine beneath, but wherever the enamel was thin, or imperfectly developed, the dentine was soon softened by any acid that was present, and the canaliculi were then speedily filled with bacteria which gave rise to irregular corrosion. And as a large majority of the bacteria which find their way into the mouth do produce acids, it is evident that conditions that increase the bacterial supply to the mouth must promote the destruction of enamel and the invasion of the dental tubules, so that the aggregation of our people in towns must tend to the diffusion of dental caries.

There are other conditions of modern life, such as the catholic habit of smoking tobacco and the frequent administration in the treatment of debility of drugs like the perchloride of iron and hydrochloric acid, that are rapidly destructive of enamel, which have perhaps contributed to the reign of caries that we deplore—a reign that extends notwithstanding an enhanced degree of attention bestowed upon the care of the teeth as indicated by the huge increase in the manufacture of tooth-brushes, tooth pastes, and powders during the last twenty years. But the principal causes of the increase of dental caries have, I believe, been summed up in what I have said to you this afternoon, and the practical question that now arises is, what can be done to remove these causes or to counteract their effects, to banish from our country a blight that has invaded every household, and to secure to our people the boon of sound and serviceable teeth?

I have said that the present state of matters is deplorable, and I am sure you will agree with me that it is harrowing to reflect on the pain sleeplessness and distress that are daily due to dental caries in this country. And beyond these immediate evils accruing from it there are remote consequences which are even more grievous. Decay of the teeth implies imperfect mastication, delayed digestion, impaired assimilation, and a whole train of derangements which embitter and sometimes shorten life. It implies also imperfect articulation, and therefore some social disability, and further than this, I would affirm that it implies sometimes danger to mental health, for in a sensitive woman especially, if she is otherwise pretty, the knowledge that she has unsightly teeth, or an obviously artificial set, is just one of those minor, but constantly recurring worries and chagrins that tend, in conjunction with others, to upset the equilibrium of the nervous system. The prevention of dental decay, then, and the preservation of sound teeth, become hygienic and prophylactic measures of the

first moment. The boy who can masticate has a much better prospect of success and happiness in life than he who can merely munch, and the girl who dares to show her teeth will have more joy in her womanhood than she who has to veil them behind an imperturbable upper lip.

What, then, are the hygienic and prophylactic measures which should be resorted to for the prevention of dental caries and the preservation of sound teeth? The most important, the most hopeful of all of them, are those which you are met to discuss this afternoon, and which have reference to the care of the teeth of children during the period of schooling. We cannot roll back the tide of evolutionary change, abolish the potato and other pulpy foods, cool down the fever of competition, or reverse the centripetal force that is drawing our labouring classes into towns, but we can do much, very much, to avert and counteract the injurious effects upon the teeth which are exerted by such movements towards more artificial modes of existence, and best of all we can do this in early life. The reformation of the vicious and criminal classes can only be successfully carried out amongst the young, and dental delinquency is only to be efficiently dealt with, on the large scale at any rate, amongst those of tender years. I would, perhaps, not be going too far in alleging that if universal, continuous and skilful supervision and management of the teeth during their development and eruption—that is, up till 20 years of age—could be secured, there would be practically nothing to do to the teeth afterwards. Once safely brought through the perils of youth, they might, in a vast majority of instances, be left to themselves afterwards, without any fear of their degenerating even under circumstances of trial and neglect.

It is during childhood that tooth troubles originate, and it seems to me that you are performing a great public duty, in a manner worthy of an unselfish profession, in calling attention to the alarming prevalence of dental caries amongst school children, and in asking that steps be taken to arrest its progress and prevent its spread. It seems to me that you have already made out an unanswerable case in favour of interference, and I cannot doubt that you will soon be successful in securing it. You have shown the reality and the magnitude of the evil as it exists; you have shown the practicability of dealing with it remedially, and you are entitled to insist that easily attainable protection should be given against an evil distressing in itself, and pernicious and far-reaching in its consequences.

In the first place, I would say, it is the clear and pressing duty of Parliament or Government to provide that in all public institutions for the maintenance or education of the young—whether under public control, as in the case of training ships, reformatories, industrial and workhouse schools, or under the management of committees of subscribers, as in the case of orphanages, hospitals and homes—the teeth of the

children shall be periodically examined by a qualified dentist, and everything that is needful done for their preservation. The governing bodies of such institutions stand in *loco parentis*, and are bound to do everything that a good and prudent parent would do to guard the children under their charge against suffering and illness, and to equip them thoroughly to earn their living. Of the children in such schools, a large number ought to look forward to joining the public services, and in order that they may do that it is essential that they should have sound teeth, for, as we know, a considerable percentage of young men desiring to enter the army and navy is rejected annually, solely on account of dental disease.

As regards Board Schools, there would certainly be greater difficulty in introducing compulsory dentistry. There would, no doubt, be resistance by ignorant and stupid parents, and perhaps by a pig-headed society, to any operative proceedings enforced to insure to children the inestimable blessing of sound teeth, just as there is opposition to compulsory vaccination and other beneficent measures of a like kind ; but, as far as I can see, there could be no objection to compulsory inspection of teeth, and it is this, I respectfully submit to you, that you ought to aim at, and that were it once fully introduced would ultimately secure for us nearly all we want. Were statutory powers obtained making it obligatory upon all School Boards and Committees of Schools receiving grants to have the teeth of every child attending these schools examined by a qualified dentist twice a year, to forward to the parent or guardian of every child a copy of the dentist's report, indicating wherever interference is necessary, what measures are required for the preservation of the child's teeth, and to provide at a cheap rate to parents and guardians disposed to avail themselves of it, the assistance necessary to carry out these measures, then I feel satisfied that dental caries would be immediately circumscribed in its ravages, and in a few generations become comparatively rare. The very existence of such a system would create a public opinion in favour of sound teeth. It would bring home to the people a sense of the value of sound teeth, and lead to the widespread adoption of domestic precautions against caries, now too much neglected. And, in so doing, it would have advantages beyond those merely relating to the teeth, for you may depend upon it that the simple ceremonial observances of the morning and evening toothbrush, regularly performed, exalts self-respect, and so has a wholesome effect upon moral character.

A system of compulsory inspection of the teeth of school children, and State-aided rectification of defects in them, such as I have alluded to, would, of course, entail a large outlay of money, for I contemplate that the dentists employed in this public service would be adequately remunerated for their labours, but the money would be well spent and would yield a splendid return in the increased comfort, contentment,

health and vigour of our people. Rather than it should not be spent on so laudable and desirable an undertaking—and truly our school rates are already high—I should willingly see some curtailment of the curriculum which our Board Schools now offer. Nutrition, I have said again and again, comes before education. It is wasteful and even cruel to force education on half-starved children; and teeth, I would now assert, come before talents. It is preposterous to confer shreds of showy accomplishments on children who cannot chew their food, and sure I am that it would be for the ultimate welfare of the country (if so be that adequate teeth culture cannot be otherwise secured) even that the grand piano in some of our London Board Schools should give place for a time to the dentist's chair. Admirable is the grand piano in its way—it is the high altar of middle-class æsthetics—but Chopin and Wagner ill accord with the groans of toothache. Horrible, no doubt, in its way is the dentist's chair, excruciating are the associations that cluster around it, but a timely resort to it robs it of its terrors, and converts it into a benefactor that lifts us from purgatorial pains into paradisiacal tranquillity and ease. The union of teeth is a far more momentous matter than that union of hearts of which we have heard so much lately.

Taken in its incipient stages caries is readily extirpated and stayed, and one of the most pleasing features in your profession at the present day, if I may say so, is the anxiety you manifest to save teeth in which it has already made serious inroads, and to sacrifice as little as possible of natural dental structure. Marvellous is your skill, but you cannot yet supply artificial teeth with the genuine vital polish, and firm and nice in grip, like the natural organ planted in its living alveolus, and your efforts are therefore directed to preserving that natural organ, even when badly damaged, wherever it is practicable to do so. Extraction, which was at one time the opprobrium of your art, just as amputation was of surgery, is now comparatively rarely practised, except by old-fashioned or questionable practitioners, although it is still, I fear, too frequently resorted to by members of my profession when trespassing—as they are often obliged to do—on your domains. Blake the artist left us a grotesque and curious portrait of the ghost of a flea—a hideous figure covered with scaly skin of black and gold, with a murderer's countenance, an eager tongue whisking out of its mouth, and a cup in its clawed hands to hold the blood. I much wish he had bequeathed to us his conception of the ghost of a lost tooth, a spectre of ivory pallor and hollow visage, with quivering fangs for limbs, worm-eaten, writhing in agony and waving aloft forceps and key, and even more do I wish that such a spectre could be sent to plague every dentist or doctor who has been guilty of denticide or the unnecessary extraction of a saveable tooth. But no such ill visions, gentlemen, will affright you, for I know how scrupulously conservative you are, how loth even to confer euthanasia on a perishing stump.

In conclusion, I would beg very cordially to wish you success in your efforts to secure the protection of the teeth of the young, and I would exhort you to steady perseverance in these efforts, undaunted by opposition, unruffled by ridicule, undiscouraged by failure, for your cause is a good and a reasonable one, and it must prevail. You are a wing—an useful and honoured wing—of the great army that is giving unceasing battle to the powers of darkness, disease and death.

Mr. J. SMITH TURNER said that before discussing the subject suggested to them by the paper, he would like to propose a hearty vote of thanks to Sir James for the address which he had delivered. The author, he thought, was entitled to their gratitude from more than one source, and they were indebted to him for the encouragement which he had afforded them by coming there that afternoon. They who had been working at this matter for years knew a little about discouragement, and the discouragement they had received coming from quarters where they expected different treatment. But to-day they had had an amount of encouragement which could hardly have been looked for, for Sir James Crichton Browne had come from London to address this assembly, and he was only sorry that the assembly was not ten times as large as it was, and even then it would not have been worthy of the address they had heard. He asked them therefore to accord to Sir James a hearty vote of thanks for his kindness in coming to them, and for the ability and earnestness he had shown in taking up the subject, which to them was very dear indeed.

Mr. BRUNTON (Leeds), in seconding the motion, said that he very heartily confirmed Mr. Smith-Turner's expressions.

The motion was put and carried unanimously.

Sir JAMES CRICHTON-BROWNE, in replying, said that he begged to thank them for listening so patiently to a rather long address, and also for the vote of thanks which had been accorded to him, and he most heartily and sincerely wished them success in the work they had undertaken.

Central Counties Branch.

THE annual meeting of the Central Counties Branch was held at Lichfield on June 25th, particulars of which will appear in our August issue.

It is stated in *Items of Interest* that the discolouration of gold sometimes seen in the mouth is due to sulphur, which is taken into the system by medicine, cakes, &c., and in proof of this it is said that a brimstone match rubbed across a gold filling will soon turn it black.

ORIGINAL COMMUNICATIONS.

Dry Cavities.*

BY L. MATHESON, L.D.S.Eng.

WHEN our indefatigable and persuasive secretary extracted a promise from me that I would contribute my mite to the programme of this year's meeting, I had no subject in my mind to base my promise upon; and after much search for a topic on which to write, I have had, for want of a better, to fall back upon one that I fear you will find very trite and stale. I certainly have nothing new to offer you, and I should not venture to read what I have written, were it not that I have before now found that a paper on some well-worn topic, such as the one I have chosen, will often call forth quite a considerable amount of interest and discussion. It is my hope that this may possibly be the case on the present occasion. In what I say, I shall do little else than reiterate what has been said many times before. But a nail has generally to be hit more than once before it goes right home, and I cannot but hope that the fact of my describing once more things of which there have been many previous descriptions, may be the final blow that shall lead some one or other to adopt methods or devices that he may have approved of but never practised.

I propose briefly to run over some of the principal means at our disposal for obtaining and maintaining dry cavities to work in. I shall not attempt to cover all the ground that the subject presents, but shall, for the most part, confine my remarks to the methods I employ myself in every-day practice.

1. The use of *linen napkins* for excluding the access of saliva to a tooth or teeth is yet far from being entirely superseded by other means adapted to the same end, although their application in the case of prolonged operations is rapidly becoming one of the lost arts.

For the preliminary preparation of cavities, and for the insertion of dressings or temporary fillings, we are constantly glad to make use of a soft linen d'oyley, and not infrequently also for such brief operations as a simple amalgam filling, or a small coronal gold. Then there are the cases where we are precluded from the use of the rubber dam, owing to the extension of a cavity far

* Read at the Annual Meeting of the Midland Counties Branch, held at Huddersfield, May 20th, 1892.

under the edge of the gum, or on account of extremely conical or only partially erupted teeth. For insertion in the mouth I was formerly accustomed to make use of the ordinary size of napkin, but I now much prefer as a rule to use much smaller ones for this purpose—about eight or nine inches square is a good size. They are less cumbersome than the larger ones, and their weight being so much less, is not so apt to pull them out of place. For application in the sub-lingual region I fold down from two to three inches of the corner, and then by repeated folds at right angles to the first, I make a finger-shaped pad. For the sulcus between cheek and alveolus I use simply a double fold, but between the two thicknesses of linen I sometimes place a thickness of rubber dam. Along with the napkin I generally make use of rolls of cotton wool and strips of bibulous paper. I find the *prepared rolls of wool* very useful for placing over the sub-maxillary and sub-lingual ducts, whilst for guarding against the flow from Steno's duct I use a great deal of *paper-fibre lint*. This material, which I get in large rolls from Burroughs and Wellcome, I cut into strips about three inches long by one and a-half wide; I fold down one inch so as to make one end doubly thick, and place this portion against the parotid duct. Its fluffy, absorbent surface frequently makes it cling tenaciously to the mucous membrane; it is stiff enough to be of real service in keeping the cheek out of one's way and the mouth open; and it is rapidly and easily renewed in very wet cases.

2. When treating lower teeth, I very often combine the use of the saliva ejector with a pad of paper lint over Steno's duct, and dispense with the cloth altogether. In such cases I generally employ the clamp, which is *ejector tube and tongue guard* all in one. When carefully placed, many patients will tolerate this method easily, who find the roll of linen against the tongue almost unbearable. As usually sold, the blades of these clamps are too horizontal, and they easily slip off conical teeth, such as the partially erupted second molars, to which one often requires to attach them; if made so as to have a more downward direction they are useful in a much larger range of cases than they ordinarily are. Instead of combining the ejector and tongue guard in one, they may be used at the same time, but as separate instruments.

3. I should be very sorry indeed to be without my *saliva ejector*. Whether used alone, or with a clamp, or in combination with the rubber dam, the comfort that it gives, both to the patient and

operator, is in my opinion very great. Patients, I find, quite appreciate its value, and if it is not applied at an early stage of the operation in hand, they often ask for it.

4. I need hardly say that one's sheet-anchor for dry work in operations of any length is the *rubber dam*. We owe a very great debt of gratitude to the inventor of this invaluable appliance. It has added incalculably to the range and capabilities of conservative dentistry; it has made many operations possible and easy which in old days were impossible, or at least, extremely difficult. It allows of a nicety and precision and fine finish in one's work that gives the latter greatly increased durability and certainty. It enables the average man, if only he is an honest plodder, to achieve results formerly only possible to the rapid and brilliant operator; it enables the brilliant man to do wonderful and exquisite work; and if properly used, it saves one's patients from an immense amount of discomfort whilst work is being done for them, besides making the results of that work far more certain and valuable.

In order to obtain a clear view of one's work, unimpeded by overhanging folds of rubber, it is well in most cases, especially where there is difficult approximal work to be done, to pass the sheet over at least three or four teeth. But a word may be said about steps preliminary to the adjustment of the rubber.

I use for all operations rubber of medium thickness, and find that it serves my purpose well. For the sake of exactitude, to avoid splitting and to save time, I use for making the necessary holes the familiar punch, as being far preferable to even the dexterous use of the excavator handle and knife edge.

Where there is much tissue to be cut away, it is generally advisable to get through the preliminary stages of excavation *before applying the rubber*. When the enamel chisel has to be freely used, and following that an extensive removal of softened dentine is required, the work can in most cases be done just as easily without as with the rubber, and the *débris* thoroughly removed by warm water. In approximal cavities the cervical edge is by this means made much more accessible, and the dam consequently easier of adjustment. Particular care should be taken, if possible, to do all work that may be required with corundum dividing discs *before* the application of the rubber; if done afterwards, one runs great risk of cutting or tearing the latter. One ought very carefully to remove any fibres of food or accumula-

tions of *tarlar* that may be present under the free edge of the gum about the teeth round which the rubber has to go. If this precaution is not taken, one gives a great deal of unnecessary pain, and besides that, the difficulty of getting dam and ligature over a troublesome cervical edge is greatly increased. Much of the suffering caused by extreme pressure on the gum, such as has sometimes perforce to be exercised, may be materially lessened by the previous application to the gingival border of a saturated solution of hydrochlorate of cocaine.

With regard to the means by which the rubber is held in position, I should like to say how much I value the *wire frame* introduced some years ago by Dr. Fernald as a substitute for retractors. This ingenious appliance I have used for the last year or two, entirely to the exclusion of the usual clips and band passing round the head. If the operator's comfort were the only thing to aim at, the advantages of Fernald's frame might not be considered great enough to call for its adoption; but seeing that the comfort of one's patients must always be the paramount consideration, and that it is very greatly added to by the use of the frame and the abandonment of retractors, I for one am sorry that it is not more generally used. Its use does away with the unpleasantness of applying more or less closely to one's patient's head a band which has been used in the same way for others; one is no longer required with trembling hands to interfere profanely with those marvellous monuments of artistic skill that so often adorn the female occiput; moreover, the lips escape the tension so often put upon them by the retractor; the cheeks are not subjected to the close contact of saliva-besmeared rubber; and the patient does not experience anything like the usual gagged and imprisoned feeling. To those who may try the Fernald frame I would say that at first you are sure to experience more or less discomfort by reason of its getting in your way when operating, but a little practice soon puts that all right, and the cases come to be exceptional indeed in which one does not work quite as comfortably with the frame as with the retractor.

Clamps for holding the rubber dam in position I make a principle of using as seldom as possible. It is only in the rarest cases that I employ them on any teeth but molars, and in the case of upper molars it is frequently possible to dispense with them. However well a clamp may fit the neck of a tooth, and however little it may, when first applied, press on the gum, it is only too

apt, before the end of the operation, by reason of the vibration of the tooth under the engine, and the inadvertent pressure of the operator's hand—it is only too apt to work towards the root, and cause a very great deal of discomfort. One can, however, greatly minimise the discomfort caused by clamps—in the first place, by using them of a proper shape, and in the second place, by applying them properly.

Personally, I like no clamps so well as the Delos Palmer. They are admirably adapted to the shape of the various teeth; they are, as far as bulk goes, delicacy itself compared with the clumsy appliances one often sees; and yet their strength is quite sufficient for their work.

In applying even these clamps one can give either a maximum or a minimum amount of inconvenience to one's patient, according as they are adjusted by a rough and uncertain, or by a steady and accurate hand. And may I say, that such minutiae as the adjustment of clamps need not be beneath our notice. It is attention to such things that makes grateful patients.

There are many cases where the clamp is supposed necessary, in which *silk* serves the purpose with as great efficiency and with much greater comfort. And I believe that silk would be employed much more than it is in difficult cases if a simple plan that doubles its usefulness were more often followed than it is. I allude to the use of a stout knot, or, better still, of a *threaded bead*. By threading on the ligature, and securing by a simple knot, a small glass bead such as is used for wool-work, one can effectually prevent the tiresome tendency of the rubber to slip over a ligature, which so often is seen in the case of conical teeth, or where there is great tension exerted on the rubber, as for instance, by the lips when a molar is being dealt with. In many cases a thread of beaded silk simply passed between two teeth, and the bead drawn snugly up into the triangular space, will often be quite enough to hold the rubber secure, without there being any necessity for tying the ligature right round the tooth or teeth.

In those very difficult cavities occurring at the labial cervical edge, and passing right up to, and often underneath the festoon of the gum, a preliminary gutta percha to crowd away the gum is often of great service; whilst for keeping the dam away from the cavity edge, as a rule a ligature held tightly by the left hand is, I find, in most cases more effectual than any of the clamps especially made for the purpose. In these cases I take special care to

arrange close under my hand, before applying the rubber, everything I may want during the operation, as it is of essential importance to keep the left hand unmoved, and to work as rapidly as possible.

In dealing with such cavities as this, and in others where there is a danger of moisture oozing over the cervical edge in spite of the dam, one may often prevent this oozing by the use of shreds of *amadou*, say a quarter of an inch long by a thirty-second wide and thick, which may be tucked between rubber and tooth by a thin spatula or burnisher.

In the case of holes made in the rubber by the accidental plunge of an instrument, an admirable way of preventing one's work from being flooded is to use short cylinders of *cork*—a quarter inch at the most in length, and in diameter a little larger than the greatest width of the tear in the rubber. A deep groove is cut round the circumference of the cork, so that when the latter is slipped into the hole the edges of the rubber slip into the groove.

I might fitly have begun this paper by saying what I may now say at its conclusion—how all-important in the doing of good work dryness is. And not only does one require dry cavities for the process of filling, but they are just as necessary for the final removal of all decayed tissue. How often, in cases where thorough dryness is only obtained just before the insertion of the filling, is it found that there is porous enamel at the cervical edge, or a little *débris* left in the groove, or a faulty fissure, none of which showed themselves whilst there was the least moisture still remaining.

As to the use of alcohol, chloroform, and hot air, they all hold important places in the means we possess for attaining dryness of the dental tissues. I think warm air is the most generally useful, and the most effectual. Whatever one uses, one cannot insist too strongly on the absolute necessity of dry cavities, and seeing that there are degrees of dryness, I would say, let them always be as dry—well, as this paper to which you have so kindly and patiently listened.

To prevent nausea while taking impressions, a little spirit of camphor in a wine glass of water used as a mouth wash just previous to commencing the operation will be found useful.

The Constitutional Effects of Retarded Eruption of the Wisdom Teeth.*

By S. J. HUTCHINSON, M.R.C.S., L.D.S.Eng.

SOME years ago I had the pleasure of reading a short paper at Croydon, at the annual meeting of this branch of the British Dental Association, on the local conditions of retarded eruption of the wisdom teeth, and it seems only a natural sequence that I should now deal with the constitutional effects which may result from the same cause, in a short paper. But I wish it to be clearly understood that I intend to deal with the question from a purely dental point of view, as I have no wish to trespass beyond the limits of dental surgery proper.

Much has been written on this subject in various text books, but I have met with so many interesting cases in my own practice that I am tempted to place the results on record, and trust these few remarks may lead to a good discussion, and that members present, may add to our store of knowledge, by narrating their experience of this subject.

In my previous paper, great stress was laid on the importance of removing the upper wisdom teeth when they were biting on the gums over the erupting lower wisdom teeth, as this is a frequent cause of great discomfort. In this paper I am most anxious to call attention to the train* of symptoms of indisposition of various kinds so often found in young people, of the ages from 18 to 25, which, no doubt, are in a great measure attributable to the reflex irritation of unerupted, or retarded, wisdom teeth.

In using the word "indisposition," it must be understood to include the various derangements of function which can only be thus indefinitely characterised. Of course there are various disorders of the mouth, throat and ear, which would be deemed constitutional, if occurring apart from the condition of retarded eruption of the wisdom teeth. But it is very interesting to note, that in many cases, this condition can be traced as a distinct factor in such complaints. It is very easy to understand that a congested state of the mucous membrane, caused by the irritation of the erupting teeth, may spread to the fauces, and even occlude the Eustachian tubes, besides producing the condition known as relaxed sore throat. Then, again, there are often curious condi-

* Read at the Annual Meeting of the Southern Counties Branch of the British Dental Association.

tions of the intermaxillary articulation, such as grating, incomplete opening of the mouth, and cracking or snapping of the joint, which occur during the period of life referred to.

But the chief object of this paper is to call particular attention to the derangement of function of the nerves, resulting in impaired heart action, and in actual neuroses, occurring between the age of 18 and 25, and I am prepared to maintain that in many cases of *syncope, partial and complete, of epileptiform attacks, and of hystero-epilepsy* occurring in young adults, both male and female, it will be found, that there is serious interference with the proper eruption of the wisdom teeth.

I have had the advantage of studying cases in the private, and hospital practice of Dr. Russell Reynolds, of Dr. Bastian and of Dr. Gowers, and each and all of these authorities fully recognise the importance of the due attention to the condition of the wisdom teeth in epilepsy, and especially in hystero-epilepsy.

I should only be adding unnecessarily to the length of this paper, without adding to its emphasis, by detailing the various cases I have met with in practice; suffice it to say that I believe it to be the duty of every dental surgeon, to pay special regard to the condition of the wisdom teeth, during the time of life mentioned, in all their patients, and to point out to them, or to their parents, the importance of giving ample room for the eruption of the wisdom teeth.

Of course it is most unwise to ask the patients directly if they suffer from any nervous disorder—this should *never* be done; but sometimes it leaks out in conversation with the parents, and it is possible to find out by seeing the parents alone, if any condition giving rise to anxiety, exists. Of course, as a matter of fact, it is seldom that the dental surgeon is informed of such things, unless the medical attendant has recognised the possibility of a dental complication, and therefore the due elicitation of such information, is a matter requiring much delicate tact.

There is another constitutional effect of retarded eruption of the wisdom teeth, and that is disturbed menstrual functions, and I feel very sure that a study of this, would lead to much valuable information, and the proper treatment of the mouth would be a great gain in the constitutional treatment of the patient.

The cases of reflex neuralgia are so common an element in these cases of retarded eruption, that I need not take up your time in dilating upon them.

Of course I must be understood to include the various forms of dental lesions, such as caries, exposed and irritated pulps, absorption, exostosis or cementosis and diseased roots, as factors in producing or adding to the various constitutional effects I have named; but further mention of them need not be made as they are more obvious and more commonly recognised than the retarded eruption of the wisdom teeth, to which I have tried to call special attention.*

I can only briefly refer to the treatment, and I have not attempted to enter into the etiology or pathology, as it is scarcely my province to discuss them.

It is obvious, first, that it is needful to see that there is plenty of room beyond the second molar for the wisdom tooth to erupt, but even if there is, it is needful in many cases to cut away a piece of the dense cartilaginous gum binding down the wisdom tooth. Secondly, if there is not room, it is possible to help matters by removing the four second bicuspid in some cases; in others, where matters are serious, I am convinced that it is quite justifiable to remove the second or first molars. Thirdly, attention should be paid to the condition of the upper wisdom teeth, and if they are biting on the lower gums they should be at once sacrificed. Fourthly, the lower wisdom teeth, in some cases, should be removed. Fifthly, in all cases of extensive caries, where such constitutional effects as I have named are present, I feel sure that judicious extraction is of the greatest value, on account of the gain of space for the future eruption of the wisdom teeth. Finally, in all cases of hystero-epilepsy, I am inclined to believe that judicious treatment of retarded wisdom teeth will be of the greatest value.

I shall perhaps be asked what is my experience with regard to the use of anæsthetics in such cases of nerve-disorder as I have referred to, and I can only say that I do not hesitate to have "gas" administered in cases of epilepsy, or hystero-epilepsy but I think it will be found that each case must be judged on its own merits, and that there is no general rule. I have found these patients sometimes quite insensitive to pain—others refuse "gas;" some cannot

* The ordinary local symptoms of difficult eruption of wisdom teeth are not dealt with, but it should be noted that local pain in the region of the wisdom teeth is *absent* in the most serious cases of reflex nerve-symptoms.

bear the least pain, but it is very distressing to have a patient have an attack in one's room !

Now, gentlemen, let me only ask your indulgence for the shortness and perhaps incompleteness of my paper, but I have only tried to epitomise the results of my own experience, in the hopes that you may be able to think seriously upon the points I have touched upon, and that some of you perhaps may be able to throw more light upon this very important and interesting topic.

N.B.—The ordinary local symptoms of difficult eruption of wisdom teeth are not dealt with ; also note that local pain in the region of the wisdom teeth is *absent* in the most serious cases of reflex nerve-symptoms.

REPORTS OF SOCIETY'S AND OTHER MEETINGS.

The Dental Hospital of London, Prize Distribution and Conversazione

AT THE PRINCES' HALL,

PROFESSOR ST. GEORGE MIVART, F.R.S., PRESIDING.

The DEAN, in making his Report, referred in feeling terms to the loss the Institution had sustained by the death of Sir Risdon Bennett and Mr. Samuel Cartwright—old friends of the hospital—but congratulated it that Sir Richard Quain, Bart., and Mr. Thomas Arnold Rogers had consented to fill the vacancies. He then went on to refer to the changes in the Staff and pointed out the manifest advantage that had accrued from opening the hospital in the afternoon and the establishment of the mechanical laboratory, how admirable was the dental education provided, which ensured to the diligent student that he should have during his student days performed with his own hands every operation and method of work he would have to do in practice.

In conclusion, he called attention to the additional year now required by the two colleges before the conjoint diploma could be obtained, and said that the dental curriculum should be five years—three years mechanical dentistry, two years hospital work—that it was made four years at its institution because four years only was required for the M.R.C.S. This system of overlapping parts of the curriculum placed those students educated in London, Manchester, Birmingham, &c., at an advantage. Those educated in provincial towns where no dental school existed having to spend five years in obtaining their dental diploma. This was hardly fair, and the disability of the provincial student would be done away with by lengthening the curriculum to five

years ; it would also place the dental student in the same relation to the medical curriculum that originally obtained, and would remove the discouragement to secure the additional diplomas which might exist under present arrangements. He commended these thoughts to all those interested in dental education.

Dr. ST. GEORGE MIVART, with a few appropriate words to each recipient, distributed the prizes to the following students :—

Saunders' Scholar : Mr. G. Northcroft. Certificate: Mr. W. H. Trewby. Ash's Prize : Mr. H. J. Stevens.

Dental Metallurgy.—First Prize : Mr. H. J. Stevens. Second Prize : Mr. C. S. Reed. Certificates of Honour : Mr. H. W. Trewby, Mr. D. P. Gabell, Mr. G. Northcroft, Mr. S. H. Hayward, Mr. A. Curling-Hope.

Dental Mechanics.—First Prize : Mr. E. H. Harwood. Second Prizes : Mr. S. H. Hayward, Mr. E. Mosely. Certificates of Honour : Mr. H. W. Trewby, Mr. R. S. Parris, Mr. J. G. Ranken.

Operating Prize.—First Prize : Mr. T. H. Clarence. Second Prize : Mr. G. Northcroft. Certificates of Honour : Mr. A. H. B. Farebrother, Mr. J. T. Hankey.

CLASS PRIZES, SUMMER SESSION, 1892.

Dental Anatomy.—First Prize : Mr. H. W. Trewby. Second Prize : Mr. E. Mosely. Certificates of Honour : Mr. D. P. Gabell, Mr. H. J. Stevens, Mr. G. Northcroft.

Dental Surgery.—First Prize : Mr. H. J. Stevens. Second Prize : Mr. F. Fouraker. Certificates of Honour : Mr. J. W. Tomlinson, Mr. H. W. Trewby, Mr. E. Mosely, Mr. H. H. Ham, Mr. G. Northcroft, Mr. A. B. Densham. Students' Society Prize : Mr. S. H. Hayward.

Professor St. George Mivart, F.R.S., in the course of his address, said that having been mainly occupied in the study of zoology and physiology he felt a little difficulty in the choice of a suitable subject for his remarks. He might, perhaps, amuse his audience by describing the various ways in which nature had supplied the place of the dentist in the lower creation, but although interesting to the zoologist and physiologist the teeth of animals could be of little concern to them on such an occasion. Time and Space had been suggested as fitting topics, but they were much too spacious for the time at disposal. nevertheless, in a certain limited sense, Time and Space, the Beautiful, the True, and the Good had all their practical relations with the Dental Hospital and Dental School of London, for though time in the abstract could not interest them, yet that portion of time included in a life was that which every one wished to prolong, but this depended much on good nutrition, which again depended on the art and science in which the Dental Hospital was concerned. Then again, the beauty of harmony and of purity were administered to by the dentist. Many

persons felt at first a certain repugnance to the artificial aids which he furnished, and yet when so furnished they easily attain to a beauty and purity which must remain beyond their reach so long as they were merely provided with the aid supplied by nature. The subject of Beauty also naturally led up to that of Truth, and truth might be defined to be a conformity between thought and things external. Now, in ordinary life, one rarely met with examples of more perfect adjustments of the kind than that which was produced through the wonderful correspondence which is attained between the mental concepts formed by the accomplished dental surgeon, and that portion of the external world which came within the compass of those dexterous fingers which carry out his mind's behests. Then, as to Goodness, the term had a very varied application and meaning, good conduct was closely connected with good feeling, but good feeling was exceptionally difficult for those who were undergoing dental torment, and amiability was apt to be sadly impaired by dyspepsia. It was clear then that members of such an Institution as the Dental Hospital administered to goodness as well as to beauty and to truth.

The learned Professor, in conclusion, made some reference to the history, growth, and development of dentistry.

The evening concluded with recitations by Mrs. Crowe and Mr. George Giddens, and glees and songs by the Sharteau choir. The evening was an enjoyable one, and passed off most satisfactorily, a large attendance being present.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Phagocytosis and Immunity.

AN interesting discussion has been recently going on in the Pathological Society of London, in which the various theories of immunity were considered. The disputants were chiefly divided into two classes, the phagocytocists and the humoralists. Dr. William Hunter, Assistant Physician to the London Fever Hospital, presented many cogent facts and consistent arguments, which seemed to reconcile the adverse positions held by the chief defenders of the two theories. According to Dr. Hunter the facts in a simple case of immunity are briefly these:—In an unprotected animal, a subcutaneous inoculation with virulent bacteria produces general infection without local change, while in protected animals inoculation with the same bacteria produces a local inflammation with a great gathering of leucocytes, but no general infection. It is evident that some change in the body of the animal is the cause of this phenomenon. The question under discussion involves the nature of this change. Bacteria produce three forms of poisons:—(1) *Toxines*, easily diffusible substances of an alkaloid nature, which act in a manner similar to vegetable alkaloids; (2) those diffusible substances which are of a proteid nature, and which are very im-

perfectly known; these are termed tox-albumins; (3) a class of substances which are known as proteins, belonging to the class of albumoses, which are derived from the bodies of the bacteria. The first two substances, which are very active poisons, are derived from the bacteria when they are alive and active. The proteins are derived from the bacteria when dead or dying. This class of substances has the remarkable property of attracting leucocytes. Metchnikoff has shown that the leucocytes possess not only the scavenging power to pick up and destroy dead matters found in the blood, but the ability to capture and destroy invading microbes.

Behring and Nissen have shown that the power which the body possesses of resisting certain bacteria is proportional to the antibiotic or germicidal properties of its blood serum, it being shown by experiment that the serum of animals rendered immune has strong bacteria-killing power, while that of the ordinary animal furnishes a favourable medium for the growth of bacteria. This last-named fact forms the basis of the doctrines of the humoralists. Dr. Hunter well maintains that it is illogical to attach to the serum and plasma of the blood, which are themselves the product of cell action, a greater power than is granted to the cell itself. Whatever properties the serum and plasma possess, they must have derived from the cells by which they are formed. The experiments of Metchnikoff have shown that these cells, which are largely concerned with the formation of plasma and serum, the leucocytes of the blood, the lymphocytes and the cells of the spleen, are particularly active as phagocytes. The weakness of the humoral theory is also shown by the persistence of the immunity in certain cases. The fluids of the body are certainly more changeable than the cells, and it is evident that the permanency of immunity must be due to the changes in the cellular structures of the body. These two doctrines, the phagocytic and the humoral, are evidently mutually complementary; one is incomplete without the other, though certainly the humoral theory must be regarded as subordinate to that of the phagocytosis.

J. H. Adami, M.A., M.B., of Cambridge (*British Medical Journal*, March 5th), sums up the results of researches as related to pneumonia, in the following succinct manner:—

"1. Immunity against pneumonia can be bestowed upon susceptible animals by introducing into the tissues the sterilized products of growth of the pneumococcus. This immunity is, in general, but of a temporary nature.

"2. Such immunity, induced by injection of bacterial products, does not immediately manifest itself; indeed, fourteen days must elapse before the simple products bring about their effects. But if the sterilized products, heated either to 106° or 107.5° F. for three to four days, or to 140° F. for two hours, then injections induce immunity within four days.

"3. The warmed vaccine leads to a reaction of but short duration; the unwarmed brings about a long-continued febrile state, at the end of which the animal becomes immune.

"4. Thus the fever with its elevation of temperature, and the antecedent heating of the vaccinal material induce the same result. One or other process would seem to be necessary in order that sterilized bacterial products develop immunity.

"5. But further, the blood serum of a protected animal injected into

the veins of a susceptible animal, confers immediate immunity. There is no delay. Evidently, therefore, some substance is present in the blood serum of an animal made immune—a substance not present in the sterilized culture fluids of the pneumococcus. The bacterial products, therefore, do not *per se* bring about immunity, but through the febrile reaction, some other body having immunity-conferring properties, is gradually developed.

"6. What is more, this same substance has curative properties, acting, not so much on the pneumococci themselves (for in its presence these continue to proliferate), but upon the poisons or toxins manufactured by them.

"7. Hence Klemperer and Klemperer distinguish two proteids, the pneumo-toxine, which can be isolated from cultures of the pneumococcus, and the anti-pneumotoxine to be obtained from the serum of immunized animals."—*Bacteriological World*.

Varicose Veins in the Fauces.

By R. SHALDERS MILLER, F.R.C.S.

THE case communicated to the *British Medical Journal* of March 26th, by Dr. Croker, of varicose veins in the throat is very interesting and of some importance. Such veins are of common occurrence, especially on the pillars of the soft palate and the back of the pharynx, less frequent on the tonsils. They may be found on the back of the tongue behind the papillæ circumvallatæ and in the glosso-epiglottidean pouches. In this situation they are generally large, swollen vessels such as Dr. Croker describes. The varicose veins on the fauces and pharynx are usually superficial, dilated venules, and are liable to bleed just as do the small, black cutaneous veins on the leg below the knee. The bulky vascular masses which Dr. Croker mentions are probably less liable to hæmorrhage, being composed of large, comparatively thick-walled vessels, and in this respect they may be compared to the tortuous and enlarged subcutaneous veins often found in the leg and thigh, which are seldom the source of bleeding. The small superficial dilated venules in the throat sometimes occur in the form of stigmata or stars, and I have met with two little girls (sisters) each of whom had such a stigma on the front of the right anterior pillar of the soft palate. These children used to have an escape of blood from the mouth almost every night during sleep, leaving a red stain on their pillows in the morning.

A fine galvanic cautery thrust into the centre of the stigma at once stopped the loss of blood in each case, and I invariably treat all such dilated venules in the throat in that way.

In Dr. Croker's case it seems to me that the chronic catarrh and consequent "hawking" afford enough argument for interference, which might take the form of electrolysis or the repeated use of the galvanic cautery, doing a limited operation only on each occasion. The possibility of hæmorrhage in the throat should be guarded against, as blood may trickle down the larynx and trachea and into the bronchial tubes, and, coagulating there, form a favourable nidus for tubercle bacilli. In two instances I have known a deep tonsillar follicle to cause perforation of a vein, or possibly a small arterial twig, with the result that

blood passed down into one of the lungs ; inflammatory consolidation soon took place around the clot, and phthisis rapidly ensued, in one instance terminating fatally in about six months, whilst in the other a two years' residence in India with sea voyages restored the patient to complete health. In the latter case the clot formed in the lung was undoubtedly small.—*The British Medical Journal*.

REVIEWS AND NOTICES OF BOOKS.

AN INTRODUCTION TO THE STUDY OF MAMMALS
LIVING AND EXTINCT. By William Henry Flower and
Richard Lydekker. London : Adam and Charles Black.

HAVING had great pleasure in reading the above named work, we very strongly recommend it to the notice of those members of our profession who take an interest in the study of comparative dental anatomy. In that portion of the second chapter of the introduction, devoted to the "dental system" we have an ably written article occupying some twenty pages. Beginning with the definition of teeth, and their dermal nature, the authors treat pretty fully of the structure, development, forms, succession, arrangement, homologies, and notations of the teeth, followed by dental formulæ, modifications of the teeth in relation to their functions, and its taxonomic value, concluding with Trituberculism.

The section on succession concludes with the opinion that "although there are difficulties in some cases in arriving at a satisfactory solution of the question, it is on the whole safest to assume that when only one set of teeth is present, this corresponds to the permanent set in the Diphyodonts. When this one set is completely developed, and remains in use throughout the animal's life, there can be no question on this subject. When, on the other hand, the teeth are rudimentary and transient, as in the whalebone whales, it is possible to consider them as representing the milk series, but there are weighty reasons in favour of the opposite conclusion."

In homologies, &c., the authors go into the much disputed question as to the canines, more especially the lower ones, and the first pre-molars, their views differing from those of Mr. Tomes, as will be seen by comparing the following quotations with the Manual. "It is customary, therefore, to call this tooth whatever its size or form, the 'canine.' The remaining four are

the 'pre-molars' or 'false molars.'" "This system of nomenclature has been objected to as being artificial, and in many cases not descriptive, the distinction between pre-molars and canine especially being sometimes not obvious; but the terms are now in such general use, and are so practically convenient—especially if, as it is best to do in all such cases, we forget their original signification and treat them as arbitrary signs—that it is not likely they will be superseded by any that have been proposed as substitutes for them." "Objections have certainly been made to this view, because, in certain rare cases, the tooth which, according to it, would be called the lower canine has the form and function of an incisor (as in Ruminants and Lemurs) and on the other hand (as in *Cotylops*, an extinct Ungulate from North America) the tooth that would thus be determined as the first pre-molar has the form of a canine; but it should not be forgotten that, as in all such cases, definitions derived from form and function alone are quite as open to objection as those derived from position and relation to surrounding parts, or still more so." In the section on dental formulæ, after stating the generally received view as to the particular incisors, pre-molars and molars, suppressed in different species, the authors say, "If this were invariably so, the labours of those who describe teeth would be greatly simplified, but there are so many exceptions that a close scrutiny into the situation, relations and development of a tooth is required before its nature can be determined, and in some cases the evidence at our disposal is scarcely sufficient for the purpose. In other instances, however, as among the Polyprotodont, Marsupials, we have decisive evidence that the missing pre-molar teeth are not those at the extremity of the series."

The circumstance that the tooth next behind the canine, has in many of the Ungulata and Carnivora, had no predecessor, is not allowed to militate against its being recognised as the first typical pre-molar, the writer of the "Cat. Foss. Mam. Brit. Mus." part iv., having evidently no doubt now as to its not being a milk tooth.

Considering to what an extent the number of genera had been increased by modern naturalists, often on very meagre grounds, one is not surprised that in this work there is a decided tendency towards condensation of them, probably too much so. Should not the presence or absence of certain teeth, where such is normal, be more than a specific character, and should all such

not be considered normal, until extended observation proved their abnormality? In treating of the several orders, families and genera, their dentition receives great attention, and the information on the subject is brought well up to date. Thus, Mr. Thomas' discovery, that in *Orycteropus* all the teeth, excepting the last three, have had predecessors, is given, and in treating of the *Anthropoidea* they say, "It is probable that the two pairs of incisors correspond to the first and third of the typical series of three."

In some cases the character of the teeth and their formulæ, as given by previous writers are corrected, of these we notice three examples. In the marsupials, the phalangeridæ and the macropodidæ are given, as having "teeth rooted," both Owen and Tomes stating that in *Hypsiprymnus* (*Bettongia*) the upper central incisors are of persistent growth, and the latter authority states the same of the lower incisors in *Phalanger* and *Macropus*.

The formula in pteropus is given correctly as $I_2^2, C_1^1, PM_3^3, M_3^3$, both Owen and Tomes giving PM_2^2, M_2^2 , despite the fact that the relative position of the teeth, when the jaws were occluded, directly contradicted it. The extinct *Hyænodon*, which according to the manual has the typical mammalian formula, is given as not having the third upper molar.

On the other hand, some statements in the work seem open to exception. In one case, a statement in one part of it is seemingly at variance with that in another, thus in the section on dental formulæ, we have "since the three molars, and almost invariably the first premolar of the permanent series have no predecessors. . . . In a few Ungulates, however, such as the *Hyrax* and *Tapir*, and in some instances the *Rhinoceros* and the extinct *Palæotherium*, the whole of the four premolars are preceded by milk teeth;" while in the *Perissodactyla* it is stated, "As regards dentition, the whole of the premolar series may be preceded by milk teeth, and it has been demonstrated in *Rhinoceros*, that when there has been no displacement of the first cheek-tooth, that tooth is a persistent milk-molar; the same condition apparently holding good in *Palæotherium*." Is not this an overlook? how could such be demonstrated without the same reasoning applying to the first cheek-tooth in the carnivora, &c., which has a similar history.

Treating of teeth of persistent growth, it is said, "The canine tusks of the *Musk Deer* and the *Walrus* have persistent pulps, and are open at their base until the animal is of advanced age, when

they close, and the pulp ceases to be renewed. The same sometimes happens in the tusks of very old Boars." Surely if such be the case, the same result should be at least occasionally found in the persistent teeth of other species, under similar conditions.

In defining the genus *Ursus*, it is stated that, "The three anterior premolars above and below, one-rooted, rudimentary and frequently wanting." When, in some of the larger species at least, the third above, and the second and third below have two distinct diverging roots, while in the second above the two roots are connate. Taking the work as a whole, it is one which will well repay perusal.

MICROSCOPICAL AND LABORATORY GOSSIP.

STEEL will not always take a hard temper, and this is frequently a cause of disappointment after having carefully shaped some tool or instrument. To avoid this occurrence it is recommended by Dr. Steele in *Items of Interest*, that the steel, before being worked, should be tested by taking a portion and drawing it down to a tapering point at a low heat and plunging into cold water. The end is then broken off and if sharp corners remain which will scratch glass, the steel is capable of a high temper.

FROM *Discovery* we learn that a new material combining some of the properties of both glass and celluloid has been recently invented. It is made by dissolving four to eight parts of gun cotton in 100 parts by weight of ether, adding about four per cent. of castor oil with four to ten per cent. of canada balsam. The compound is then poured into glass plates and kept at a temperature of 120°. This substance is said to resist the action of alkalies and dilute acids, and in addition to being transparent is also flexible.

DISINFECTOL is a substance analogous to creolin and lysol. It is a brownish-black, oily liquid, having a density of 1.086. It has an alkaline reaction, and contains hydrocarbons, soaps of resin, combinations of soda and carbolic acid. It is said to have very energetic disinfectant properties, if used in the form of emulsion, containing from two to five per cent.—*Items of Interest*.

A NEW steel alloy which, though primarily intended for armour plates, may have many other useful applications, has been brought out by a French firm. The steel contains one per cent. of chromium, two per cent. of nickel, and 0.4 per cent. of carbon. The steel is first melted in an open hearth and in the ordinary way. When the silicon and manganese in the metal have attained their proper proportions the nickel and chromium are added in the form of ferro-nickels and ferro-chromes, or in the shape of a double ferro-chrome and nickel. The resulting metal is alleged to be of exceptional toughness.—*Discovery.*

ANNOTATIONS.

THE BENEVOLENT FUND.—In accordance with Rule X. it will be necessary for one member of the committee of management to retire. Mr. S. J. Hutchinson has intimated his wish to do so, therefore it will be necessary at the Annual Meeting to elect someone to fill his place on the committee, and in accordance with rule XI. the following gentlemen are eligible for election. It will be noticed that the list is selected from London men—the reason being that those subscribers living in the country as a rule find it difficult to attend the meetings, which are pretty frequent and it is rarely convenient to hold the committee meeting on the same day the Representative Board meets; however the subscribers, in accordance with Rule XII., have the power of substituting any name they like in place of those suggested, but should a country subscriber be elected it is particularly requested that he will not accept the post unless he will be able to attend the meetings pretty regularly. The following names are suggested for the choice of the subscribers, all being eligible for election :—Leonard Matheson, David Hepburn, C. M. Bayfield, J. J. F. Corbett, Walter Coffin, Augustus Cronin, Chas. West, E. Lloyd Williams (London). This notice is given to the subscribers to the Fund in compliance with Rule XXVII.

GEORGE W. PARKINSON.

Hon. Sec.

A list of the demonstrations as at present arranged will be found in the programme at another page. Three rooms have been prepared for this section, comprising a large and well-lighted

room for chair-side demonstrations, a lecture room and a laboratory where different methods of working continuous gum will be shown in operation. When the operation or process to be shown would gain by it, the demonstrator will first give a short description of it in the lecture room, and in this way it is hoped to save a good deal of needless repetition. For this suggestion the Committee are indebted to Mr. Booth Pearsall of Dublin.

CHARING CROSS HOSPITAL MEDICAL SCHOOL—PRIZE DISTRIBUTION.—The annual distribution of prizes of the above school took place on Wednesday, June 29th, the chairman being Mr. J. Passmore Edwards. The annual report which was read by the Dean, Mr. Stanley Boyd, showed that extension of the school buildings had been completed, allowing of increased accommodation to the pathological and anatomical collections. During the year Dr. Hake Tuke and Mr. Chalmers Mitchell had joined the teaching staff, Dr. Arkle had been appointed pathologist and curator, while Messrs. Gibbs and Johnston, old students of the hospital, had been appointed respectively demonstrators of anatomy and physiology. The entries had reached 84, being an increase on previous years, while, at the Conjoint Board Examination, 28 had passed the first examination, 30 the second, and 23 the final. The list of awards contained the names of a large number of the dental students and one of the scholarships, namely, the Golding being won by D. R. Gabell, who also obtained the medal for practical chemistry and certificate for practical physiology. Certificates in anatomy and physiology were won by W. W. Gabell, in chemistry by W. H. Park, and in practical chemistry by G. Mosely, W. H. Goodman, and C. S. Gardner, while G. L. Austen obtained the medal and H. H. Ham a certificate. A certificate in materia medica was won by H. J. Stevens, who also obtained the first prize for dental surgery, the other awards in this last subject falling to E. H. Harwood, J. W. Tomlinson, F. T. Triff.

At a meeting of the Council of the College of Surgeons, England, on Thursday, June 9th, the following gentlemen were admitted Licentiates in Dental Surgery: A. Barnes, Charing Cross and Dental; F. W. Barrett, London and Dental; R. E. Bascombe, Middlesex and National Dental; H. Canton, M.R.C.S.E., Middlesex and Dental; B. A. Castellote, Mid-

dlesex and Dental ; T. H. Clarence, Charing Cross and Dental ; E. A. Curtis, Middlesex and Dental ; F. L. Dodd, Middlesex and Dental ; W. H. Gilmour, Liverpool and Liverpool Dental ; A. Goodridge, Charing Cross and Dental ; E. W. Harwood, Charing Cross and Dental ; S. H. Hayward, Charing Cross and Dental ; R. Herschell, Middlesex and Dental ; G. Hughes, Middlesex and Dental ; J. C. Lingford, Manchester ; E. A. Miller, Middlesex and Dental ; W. G. Owen, Birmingham ; A. S. Pearce, Charing Cross and Dental ; H. Phillips, Charing Cross and Dental ; J. S. Sewill, M.R.C.S.E., Liverpool and Guy's ; E. F. Smith, Charing Cross and Dental ; P. S. Spokes, M.R.C.S.E., University College and National Dental ; H. B. Stoner, Guy's ; J. H. Sykes, Manchester ; F. L. Tanner, Manchester ; F. T. Trott, Charing Cross and Dental. Sixteen candidates were referred.

LAST month we received, just as we were going to press, the prospectus of the Incorporated Edinburgh Dental Hospital and School, so we gladly take this, the earliest opportunity, of wishing success to the scheme. It has been the result of very careful thought on the part of very careful men, and seeing that the shareholders cannot derive any profit from the concern, they are practically subscribers. The plan is, we are assured, succeeding well. So far some £900 worth of shares have already been taken up, and this is only a beginning. The motto chosen for the seal of the new company is "*non nobis solum sed omnibus*," which sounds liberal minded.

ROYAL COLLEGE OF SURGEONS IN IRELAND—DENTAL EXAMINATION.—The following gentlemen, having passed the necessary examination, have been admitted licentiates in dental surgery of the college : John Hutchison Edward (Manchester), and James William Smith (London).

WE understand that Mr. S. J. Hutchinson will deliver the introductory address in the Faculty of Medicine of University College, London, on October 4th, 1892.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Branch Representatives and how to Elect Them.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I am sorry to see from the published report in your columns of the last meeting of the Representative Board, that Mr. J. Smith Turner is suffering so acutely from branch representative myopia. Nevertheless, this singular ocular affection of an ordinarily intelligent and clear-sighted friend, should not be taken by the members of the British Dental Association generally; as an indication that nothing can be done by the Association to remedy some glaring inequalities I will point out; as existing in the present representation of branches, whether the seats on the Board be occupied by *ex-officio* or nominated members. The following table, drawn up from the current annual list of members, will show all honest and fair-minded members of the British Dental Association some important facts that have been overlooked by the Business Committee and the Representative Board.

TABLE OF PROPORTIONAL REPRESENTATION AS PRACTISED BY THE BUSINESS COMMITTEE OF THE BRITISH DENTAL ASSOCIATION.

Branch.	No. of Members.	Representatives Nominated.	Board Seats. Ex-Officio.
Central Counties ...	40	5.00 2 members	5.00. 2 members.
Eastern Counties ...	32	6.25 2 members	6.25. 2 members.
Irish ...	41	2.44 1 member	4.88. 2 members.
Metropolitan ...	92	none	2.20. 2 members.
Midland ...	145	2.76 4 members	1.38. 2 members.
Scottish ...	35	5.71 2 members	5.71. 2 members.
West of Scotland ...	41	4.88 2 members	4.88. 2 members.
Southern Counties...	85	2.35 2 members	2.35. 2 members
Western Counties ...	79	2.53 2 members	2.53. 2 members.

Looking over the table it is at once seen that the Metropolitan (92) and Irish Branches (41) are not represented at the Board with the same proportion of members granted, without a murmur, to the Eastern Counties Branch with thirty-two members, the Scottish Branch with thirty-five members, the Central Counties Branch with

forty members, and the West of Scotland Branch with forty-one members.

The Scottish Branches number altogether seventy-six individuals, of whom fourteen are members of both the Scottish and West of Scotland Branches ; yet this relatively small group of members return four *ex-officio*, and four nominated members—eight in all—to the Representative Board, to the great satisfaction of Mr. W. Bowman Macleod, but to the great injustice of other branches that have been even more active in promoting the objects of the British Dental Association.

Without dwelling unduly on Mr. J. Smith Turner's searchings of conscience, the table shows clearly that some branches are over—and other branches are under—represented on the Board, whether their members attend as representatives or delegates, to take part in the barren results now regularly achieved by our collective dental wisdom. Our members generally will also notice in Mr. Turner's speech, that certain bye-laws are admitted to work "clumsily," with the natural result that the election held in Exeter was illegal, the bye-laws having been overlooked on that occasion. Will the members who read the table attentively agree with Mr. Smith Turner's statement that "hitherto the Association had been content with equality in election under cover of universal suffrage, but he thought that differentiation might lead to disintegration" is correct, when compared with the actual results as we see them in practice? The sooner orderly and sensible business methods are adopted in the British Dental Association the better for the growth of the Association ; already too much stunted under the London system of dry nursing, as compared with the results to be gained by the use of a more liberal and nutritious policy, combining a flavour of Mr. Dennant's "flexibility" with Mr. W. Coffin's liberty of growth. The necessity for a postal ballot ; proportional representation of branches ; the inability of a member to be re-elected on any of the London committees when his period of office has expired until twelve months have elapsed, and the regular issue to members of the Board of proper agenda papers on which they shall be at liberty to write to the Board ; the holding of alternative meetings of the Representative Board in London, Dublin, Edinburgh and the place chosen for the Annual Meeting would, in my opinion, do away with our discontent at the mismanagement that prevails. It is all very fine for the London members of the Representative Board to dwell on the duty of the members outside London to attend the meetings, but something is to be said on the part of men to whom the sacrifice of time and cash in long journeys, frequently by night, is not possible, but whose opinions, nevertheless, are quite as good and sound as any put forward by London members, and who are also deterred from attendance from the absolute poverty of results from meetings of the Representative Board. Many disputed points amongst us are solved by the bye-laws

working the British Medical Association, which has an experience of over sixty years to fall back upon, and from which our own bye-laws were copied in a half-hearted fashion to suit the views of folk who like to manage everything their own way.

I am, sir, your obedient servant,
 W. BOOTH PEARSALL,
President Irish Branch, and ex-officio Member of Representative Board, British Dental Association.

Microscopy at Manchester.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—This issue of the journal proclaims the Manchester programme, and I particularly desire to draw the attention of Dental Microscopists to their individual section, and trust a liberal response to that group, which includes appliances, specially designed for use in microscopy, will bring before the members original ideas of practical utility.

All exhibits must be forwarded before August the 8th to
 DAVID HEADRIDGE, *Hon. Sec.*
 279, Oxford Road Manchester.

APPOINTMENTS.

J. P. SMITH, L.R.C.P., M.R.C.S., L.D.S.Eng., Dental Surgeon to the Victoria Hospital for Children.

J. CLARKE STOKOE, L.D.S.Eng., Dental Surgeon to the Newry General Hospital.

T. CLARENCE, L.D.S.Eng., and S. H. HAYWARD, L.D.S.Eng., House Surgeons to the Dental Hospital of London.

E. F. SMITH, L.D.S.Eng., Assistant House Surgeon to the Dental Hospital of London.

MICHAEL Y. WOOLF, L.D.S.Eng., Dental Surgeon to the Girls' Home, Marylebone Road.

T. E. SHERRATT, L.D.S.Eng., Demonstrator of Operative Dentistry, at The Victoria Dental Hospital, Manchester.

T. CLARENCE, L.D.S.Eng., House Surgeon to Dental Hospital of London.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 8.

AUGUST 15, 1892.

VOL. XIII.

The Annual Meeting of 1892.

THE thirteenth Annual Meeting of our Association has come again and gone, leaving behind it, like many of its predecessors, a store of pleasant recollections.

In strong contrast to last year the recent gathering was free from any vexed political discussion, and thus more time was available for the consideration of scientific materials. The question of accepting the hospitable invitation of the Columbian Congress excited a small amount of discussion, and tempting though it was, the decision finally arrived at, to remain in England and hold the next meeting at Birmingham was, all things considered, practically inevitable. Perhaps the most radical change effected at the business meeting was the alteration, so long desired and advocated in many quarters, of the date of the annual gathering. For years it has been felt by a large proportion of our members that the August fixture was becoming inconvenient if not irksome. The meeting is not all holiday for everyone concerned, and the holiday month of the year has been grudgingly yielded up

by many overworked practitioners to whom it has almost amounted to a choice of evils whether to miss the dental event of the year or to encroach upon their already too brief leisure. One of the last acts of the business meeting, and certainly one of the most gratifying, was the election of Mr. Smith Turner to the post of a vice-president, and we feel sure that the words used by Mr. Canton in proposing this well-earned honour will be endorsed on all sides by members of our Association. The inaugural address of our new president, Mr. H. C. Quinby is well worthy of more lengthy comment than the exigences of time allow of on the present occasion.

From year to year it has been the endeavour of the Executive to provide some special subject for general discussion, and in recent years, anæsthetics and dental education have played prominent parts; at Manchester the subject was that of the treatment of the first permanent molar. The discussion which took place we shall report fully in a subsequent number, and though but little fresh matter was brought to light, nevertheless it has tended to show that much remains to be considered on this important subject.

A special feature of the gathering was the Loan Museum, and a really fine collection was brought together, of abnormal teeth, models illustrative of irregularities in position and the effect of extraction of the first permanent molars. Most of these latter were exhibited so as to show the lingual surface of the bite by cutting the articulated models through the median line, a method which will be more generally adopted in the future. The exertions of Mr. G. G. Campion went a long way to make this part of the meeting successful, and he thoroughly deserved the vote of thanks which was accorded to him. It is also gratifying to think that the collection will not be dispersed without a full and detailed report being drawn up, and for this purpose

several Committees have been appointed to report upon different sections.

The numbers of papers read before the meeting fell short of previous years. The important branch of anæsthetics was, however, fully represented by four short papers besides demonstrations.

The microscopical section which has formed a feature of recent meetings was as interesting as ever; the exhibits of all kinds being numerous, and including not only microscopic slides, but various apparatus, literature, &c., demonstrations in this section being given by Messrs. Smith, Mellor, Andrew and Dunkerley.

The study of micro-organisms is fast taking a hold upon members of the profession; the impetus given to it by Mr. Mummery at the last year's meeting will, we hope, be the means of considerably increasing the knowledge we at present possess of micro-organic life. That this branch is worthy of more attention we feel quite certain, and hope that in future meetings it will play a still more prominent part.

Socially, the gathering in no wise fell short of our anticipations; everything had been planned for the comfort of the members. Of all the entertainments the *conversazione* given by the Midland Branch and the Manchester Odontological Society deserves the place of honour. The museum of Owens College was used for this purpose, and with the aid of drapery of the "Liberty" style and floral decorations wore a most comforting and cosy appearance. Plenty of amusements were provided, but the telephones were besieged the whole evening; the guests were thus enabled to hear a concert which was being held at Stafford, and when weary of this, as a change they were able to transfer themselves to other places of amusement without change of seat. Special entertainments were as usual provided for the ladies, and it must have been very gratifying to Mrs.

Quinby to receive from them the present of a silver bouquet holder, as a small token of their thanks for the great kindness they had received from her during their visit to Manchester.

Considered from all sides the meeting was a distinct success, and as gratifying as anything was the well reported accounts which were to be found day by day in all the leading provincial and metropolitan papers; this alone showing how the influence of the Association is being felt amongst the whole of the community.

ASSOCIATION INTELLIGENCE.

The Annual General Meeting.

THE thirteenth Annual Meeting of the British Dental Association was held in Manchester, August 11th, 12th and 13th; and as the time between the 13th and 15th is short we can only give a brief epitome of what took place. The meeting was inaugurated on Wednesday evening by a reception given at the Town Hall by the Mayor of Manchester (Mr. Alderman Bosdin T. Leech) who with the Mayoress received the guests on their arrival. During the evening the visitors after inspecting the magnificent building assembled in the large hall where the Mayor addressed a few words of welcome. The citizens of Manchester, he said, were always glad to see Manchester the centre and meeting place of large associations, either with a benevolent or educational object, and they were very pleased to have a visit from the members of the British Dental Association. He should do what he could during their visit to make it a pleasant one. There was no doubt that the object their Association had in view was one calculated to be of the greatest benefit to the community at large. He was quite sure a great share of the misery that existed at the present time was due to the neglect of dentistry. People received great benefit and happiness by the skill which dentists brought to bear in following their profession, and he only regretted that the establishment of a dental hospital in this city did not receive that encouragement it ought to receive. It was

the desire of many citizens that they should have a dental hospital worthy of Manchester, and he sincerely hoped the visit of the British Dental Association might further that end.

Mr. SMITH TURNER, the President, in responding, said, that as President of the British Dental Association he desired to tender their grateful acknowledgement to the Mayor for his hospitality and for the kind manner in which he had spoken of them. He felt that in accepting the hospitality of a city like Manchester, and in listening to those kind words, they were beginning in some degree to reap the benefit of a long series of years of hard work. It was pleasing to hear the reference to our efforts in the matter of education, and he hoped it would be their pleasure to see the results of them before long.

Mr. J. KENDRICK PYNE, the city organist, then played several musical selections on the grand organ, which were most heartily listened to and appreciated by those present.

The business proceedings of the meeting were held at Owens College and commenced as usual by a meeting of the Representative Board in the Council chamber of the College.

The Annual General Business Meeting took place in the chemical theatre. The President, Mr. J. Smith Turner (London) occupying the chair. Letters regretting inability to attend any part of the meeting were received from Principal Ward and the Dean of the Department of Medicine (Professor A. S. Young), both gentlemen being away from Manchester.

Mr. W. H. WOODRUFF, the treasurer, presented the financial statement for the year, which showed that the financial condition of the Association was in every way satisfactory, and that it gave evidence of continued progress.

Mr. W. B. PATERSON, the hon. secretary, read his report which was adopted. The Literary Committee for the examination of papers was re-appointed.

The result of the ballot for the Representative Board was then read, the successful candidates being Messrs. C. S. Tomes, R. H. Woodhouse, D. Hepburn, J. T. Browne-Mason, J. R. Brownlie, A. Kirby, E. Lloyd-Williams, R. P. Lennox, T. E. King, C. Rees-Price, J. J. Andrew and J. H. Whatford.

Mr. BOOTH PEARSALL took exception to the ballot, and moved a resolution which was seconded by Mr. G. M. P. Murray.

The PRESIDENT said a few words in respect of the resolution, which on being put was lost by a large majority.

The question of next year's meeting was then discussed, the President moving and Mr. H. C. Quinby seconding that it be held at Birmingham, and Mr. W. H. Breward Neale (Birmingham) be nominated President-elect.

Mr. W. H. COFFIN then addressed the meeting in regard to an invitation from the Executive Committee of the World's Columbian Dental Congress, inviting the British Dental Association to hold their Annual Meeting of 1893 at Chicago, he referred to the various conditions, and also read extracts from letters relating to the matter. He also gave a rough estimate of expenses.

After some remarks from Messrs. Quinby, Bowman Macleod, and Harding, Mr. West proposed, and Mr. Stocken seconded that "the Annual Meeting of 1893 should be held at Chicago."

Messrs. Tomes, Cunningham, Pearsall, Canton, Richards, and the President continued the discussion, the latter pointing out that it might be possible to appoint delegates for the Chicago meeting from the Association. The amendment being put, was lost by a large majority. The original motion that Birmingham should be selected was put and carried, and the vote that Mr. Breward Neale being nominated President-elect was carried with acclamation. A cordial vote of thanks to the Executive of the World's Columbian Congress for their gracious invitation was also passed.

Mr. HARDING then proposed, and Mr. BOOTH PEARSALL seconded that the time of the Annual Meeting should be during the Spring vacation at Mason's College, Birmingham, the actual date being left to the Representative Board to decide.

Messrs. Coffin, Woodruff, Roberts, Neale and Murray supported the motion which was carried.

Votes of thanks were then passed to Owens College, the Mayors of Manchester and Salford, the Devonshire Hospital, the Directors of the Manchester Ship Canal, and the various local Committees.

Mr. BOOTH PEARSALL also proposed, and Mr. H. C. Quinby seconded that a hearty vote of thanks be accorded to Mr. G. G. Campion for his work in connection with the Museum.

Mr. CANTON in well chosen words then proposed that Mr. Smith Turner be elected a Vice-President of the Association; this was seconded by Mr. Booth Pearsall and supported by Messrs. Bowman Macleod and H. Campion, the motion being put by Mr. H. C. Quinby and carried by acclamation.

The retiring PRESIDENT then read his valedictory address, which is printed on another page.

A vote of thanks to Mr. Smith Turner for his address was then passed. Mr. QUINBY took the chair and delivered his inaugural address, which is also printed as an Original Communication.

On the motion of Mr. SMITH TURNER, seconded by Mr. LEE RYMER, a vote of thanks was accorded Mr. Quinby for his address.

The minutes of the meeting were then read by the hon. secretary.

Mr. W. BROUGHTON (Eccles) read a paper upon the application of electricity to dental purposes. Mr. Broughton had at his command a large quantity of electrical apparatus, with which he illustrated his address. The meeting then adjourned for the day.

On the invitation of the Mayor of Salford (Mr. Alderman Keevney) the members of the Association, their lady friends, and a number of invited guests afterwards drove to Peel Park, where a garden party was held. The visitors, who numbered about 600, were received on their arrival by the Mayor and the Mayoress (Miss Keevney). In a single sentence the Mayor extended a cordial welcome to all, and expressed a hope that the Association might continue to prosper, and that some day it might find its way back to Salford. Mr. C. S. Tomes (London) briefly returned thanks. The afternoon was spent in promenading in the park and in the gallery. In front of the reading-room entrance to the Museum the police band was stationed, and it played a selection of music in creditable style. Refreshments were served in the Langworthy wing of the buildings. The proceedings passed off very successfully.

In the evening a conversazione was held in the Owens College. The guests were received by the President of the Association (Mr. H. C. Quinby), Mr. W. E. Harding (President of the Midland Branch), Mr. P. Headridge (President of the Manchester Odontological Association), and Mr. Henry Campion (Chairman of the Reception Committee. In the Beyer Biological Lecture Theatre photographs were shown by limelight exhibition, of scenes in North Wales and of "life in the Manchester streets and theatres." The council-room was used for a display of telephones, and a telephonic concert was transmitted from the residence of Mr. G. W. Taylor, of Stafford. The telephonic entertainment gave much delight, the music, which came over the wire from Stafford, being heard with the utmost distinctness. The telephones were those of Mr. Joseph C. Chambers, of the National Telephone

Company. In the Zoological Laboratory there was a miscellaneous exhibition of a scientific character. During the evening music was given by Forsyth Brothers' string band.

On Friday, August 12th, the proceedings commenced with a meeting of the Benevolent Fund. In the absence of the officials the chair was taken by Mr. Alderman LEE RYMER, Mr. Mummery reading the Reports of the secretary and treasurer.

Mr. HOWARD MUMMERY read a short paper and gave a lantern exhibition of slides relating to (1) micro-organisms of caries, and (2) the theory of phagocytosis. A discussion on the treatment of the six-year-old molar was then opened by the President, who was followed by Dr. Davenport, Messrs. Campion, Smith Turner, Cunningham, Tomes, Wallace, Booth Pearsall, Matheson, Mundell, Rose, Storer Bennett. A full report of this will appear in our next issue.

At the conclusion of the discussion adjournment was taken for lunch, and on resuming Mr. Brunton read a paper "On Some Practical Details of Operative Dental Surgery and Mechanics." This was followed by the second report on the teeth of school children presented by the Schools' Investigation Committee. Mr. W. SIMS concluding the meeting by reading a paper on "The Rotation of Twisted Upper Incisors."

During the afternoon excursions were made to Messrs. R. Haworth & Co.'s Cotton Mills, Salford, after visiting which the members proceeded to the "Old America" Exhibition at Old Trafford. A large number of the members also availed themselves of the opportunity of inspecting the Manchester ship canal.

In the evening the annual dinner was held at the Grand Hotel, under the presidency of Mr. H. C. Quinby. The principal toast of the evening, namely, the "British Dental Association," being given by Dr. Rushton Parker, and replied to by Mr. Smith Turner. A fuller report of this with the other toasts, will appear in our next issue.

During the dinner Mrs. Quinby held a reception for the ladies, a pleasing feature of which was the presentation to Mrs. Quinby of a silver bouquet holder.

On Saturday, short papers and demonstrations on anæsthetics were given by Dr. Hewitt, Messrs. Rowell, Wilson, and Coxon, and demonstrations relative to operative and mechanical dentistry, by Messrs. Murray, Baldwin, Briault, Broughton, Dolamore, Headridge, Hooten, Humby, Lennox, Matthews, Matheson, Rose, Whittaker, Lloyd-Williams.

Microscopical demonstrations were given by Messrs. Hopewell Smith, Andrew, Mellor, Dunkerley. In the afternoon the members and ladies attended a garden party at Buxton, given by the President and Mrs. Quinby, a special train of saloon and first-class carriages being provided, the train leaving the London Road Station of the London and North Western Railway at 12.45, and proceeding direct to Buxton.

Luncheon was served at the Skating Rink on the arrival of the party. Some amount of attraction in the afternoon was afforded by a lawn tennis tournament, and during the evening a display of fireworks was given by Messrs. Brock (London). A special train conveyed visitors back to Manchester, but a large number remained behind, prolonging their visit.

During the meeting an excellent exhibition of microscopical objects and apparatus was open daily ; in this display were included photo-micrographs and exhibits of bacteria cultures and appliances used by Professor Delepine (Owens College), microtomes by Professor Marshall (Owens College), and various other forms of microscopical apparatus, the property of members.

The Loan Collection of the Museum attracted great attention, and the museum illustrated to nearly completeness the subject of irregularity of teeth, in form, size, number and position. It is intended to draw up a full report on the Museum, which will be illustrated, and published in a subsequent number.

Central Counties Branch.

THE eighth Annual Meeting of the Central Counties Branch was held at Lichfield on Saturday, June 25th, the President-elect, Mr. W. Reginald Roberts, being resident in the city.

The arrangements for the visitors were in every way complete, and it was gratifying to all to find that the meeting in point of success was second to none of those hitherto held. The headquarters were at the George Hotel.

There was a large and representative gathering of members, including the President, President-elect, Messrs. H. R. F. Brooks (Banbury), C. A. Batten (Kidderminster), H. N. Grove (Walsall), J. Hinds (Coventry), E. Hordern (Leamington), R. F. H. King (Newark), Geo. C. McAdam (Hereford), C. F. Petit (Southport), F. L. Robertson (Cheltenham), A. E. Donagan, F. R. Howard, J. Mountford, Breward Neale, P. Naden, W. Palethorpe, E. J. Parrott, F. W. Richards,

Charles Sims, J. W. Turner, A. Jenkins, M. Knott, G. C. F. Matthews, W. Owen, E. Sims, J. W. Whittles (Birmingham).

Visitors :—Brigade-surgeon Lieut.-Col. Simon, Brigade-surg. Lieut.-Col. Morgan, Drs. Dudley Buxton, Spence, Short, Kockinlay, Homan, Sutton, Clark, Hubbard, Vinrace and Eliot Welchman.

In the morning, shortly after 10 o'clock, a council meeting was held in the Arts School, the chair being taken by the retiring President, Mr. F. C. B. Cave. The council nominated Mr. Roff King as President for next year, and on the motion of Mr. C. Sims he was unanimously elected. Mr. F. C. B. Cave and Mr. C. Sims were then chosen vice-presidents ; Mr. A. E. Donagan, hon. secretary ; Mr. W. Palethorpe, treasurer ; and Messrs. J. E. Parrott and J. W. Turner, auditors. The new members appointed on the council were as follows :—Messrs. Brooks (Banbury), Mountford (Birmingham), and Helyar (Bristol).

The Treasurer's Report was deferred until the next general meeting, as the treasurer was unavoidably absent.

The hon. secretary, Mr. W. Palethorpe, then presented his Report, which was adopted, as follows :—

GENTLEMEN,—In presenting this Annual Report, we may congratulate ourselves on a year of considerable activity, but not, as last year, of considerable growth. We have received three resignations, and have elected but two new members of the branch and the British Dental Association. We have held three ordinary and two special council meetings, at the first of which Mr. Grove read his paper, entitled "A Coach and Four through the Dentists Act." This paper elicited a vigorous discussion. At the next, Mr. John Humphreys read a most instructive paper, which was most beautifully illustrated by the aid of microscopical sections, exhibited by limelight. At the third, Mr. J. E. Parrott read a carefully prepared paper on the "Preparation of Cavities for Filling," illustrated by thirty-six excellent diagrams. At this meeting the members were glad, after a long absence through illness, to welcome their president, Mr. Cave, back again, and they heartily congratulated him on his restoration to health.

In accordance with a resolution of the council, the rules have been reprinted, and the alterations that have been made since 1884 have been added to them.

The Benevolent Fund has during the year benefited by your generosity to the extent of £3 13s. 11d.

Mr. F. CAVE B. CAVE, the retiring President, thanked the members of the branch for their kind indulgence during his two years of office ; he was very sorry that his long and serious illness had prevented him giving that amount of time to the work that he could have wished, but he had done his best under the circumstances. He was told that every minute was wanted to get through the necessary business of the meeting, so he would not detain them, but would with much pleasure introduce his successor, Mr. Walter Reginald Roberts, whom he felt sure would prove the right man in the right place.

After the business meeting a general meeting was held, at which the newly-elected President, Mr. W. Reginald Roberts, took the chair.

The PRESIDENT then delivered his inaugural address as follows :—

GENTLEMEN,—It would be wanting in courtesy on my part if I did not at once rise and thank you for the honour you have conferred on me by electing me your president—an office that I accepted with a certain amount of diffidence, being keenly alive to the great task I was undertaking in following in the footsteps of such able and honoured men as have preceded me, especially our friend Mr. Cave, whose kindness and hospitality during his tenure of office has been practically unbounded, and to whom, I am sure, we all feel most truly grateful ; but still, as you have placed me in this position, I will do my utmost to merit your confidence, and to carry out the work appertaining to such an office in a straightforward and honourable manner, and, in return, I ask for your aid, to help me in forwarding that end ; and when the time comes for me to vacate this chair in favour of someone else, I hope you will find it has lost none of its social dignity or professional status by my having occupied it.

Now, gentlemen, allow me to offer you a most cordial welcome to Lichfield, hoping that your visit here may prove both interesting and instructive.

Of course this city does not offer so many points of interest to you as many other places we have had our annual meetings in before ; but still, in point of architectural beauty, we have something here of which we are all justly proud, and something I think you will find difficult to excel, or even to equal. And that is our cathedral, which dates from about the 13th century. When you look at its three most graceful spires, its noble and delicately carved West Front, all its lovely buttresses, betokening age and antiquity, and then, when you view the interior, either as a whole or in parts, I think you will agree with me that, although small, we have certainly one of the most lovely and perfect mother churches in England.

Lichfield also is the birthplace of the renowned scholar, Dr. Johnson, whose monument stands in the Market Square, the house that he was born in being in close proximity. A short distance out is St. Chad's Church, which, I believe, is one of the oldest in England. It is well worth a visit, should time permit. St. Chad was the first bishop of Lichfield.

Having given you a few details of our ancient city, I will now proceed to the more business part of my address. It is very encouraging to see how this branch has grown since its formation, eight years ago. It bespeaks well for the future of our profession, for it shows how each of its members is striving to elevate his calling—for unity is strength, and it is only by joining such an Association as this that the public can be taught to distinguish between the qualified dental surgeon and

the charlatan. For the British Dental Association has amongst its members the *élite* of the profession.

When we look back twenty or even ten years ago, and see the position dentistry occupied then, I cannot but congratulate you on the change that has taken, and is still taking, place, with respect to our profession—seeing how very much it has risen in public estimation during the last few years. For this position we are indebted to Sir John Tomes, F.R.S., whose name is known throughout the whole scientific world ; to Sir Edwin Saunders, dentist to the Queen ; to Mr. Smith Turner, and others. It was they who got the Royal College of Surgeons to grant a diploma in dental surgery ; it was they who petitioned Parliament and obtained the Dentists Act, which gives us a distinct *professional* status, and the right to the title of dentist ; and also was the means of establishing a Dental Register, upon which all properly qualified practitioners, and those in practice before the passing of the Act, had to enrol their names—and no one is allowed to practise dentistry unless he is upon the Register, or a fully qualified medical man—and it was they who founded the British Dental Association, whereby the dignity and social element of the profession might be maintained. I am sure that we cannot be too grateful to such men, who have been such pioneers of dental reform ; they gave their labours willingly and unceasingly, and through their self-denial we find ourselves in a position to-day of which we may be justly proud.

When the Dental Act was passed a great many names got on the Register that had no right whatever to be there, but in every walk of life black sheep are to be found, and so with us. We have the charlatans, who trade on the public by advertising their patent atmospheric suction plates, crown, bar and bridge work, displaying show cases, &c., &c. ; but time, I hope, will eradicate this evil, as by such associations and scientific meetings as these the public will be soon educated sufficiently as to be able to guard themselves against such quackery, and to seek the advice of those who are learned and skilled in their calling, and who, at the same time, bring culture and dignity to bear upon it.

There has been of late a great deal written and said as to the necessity of a higher qualification in dental surgery. For my own part, I do not consider the time is ripe for that. Let us make, by all means, our examination for the L.D.S. as rigid and as perfect as possible, but personally, I am not in favour of a multiplication of diplomas. The dental curriculum at present is a very complete one. A dental student has to pass the same preliminary examination in arts as the medical, which puts him at once on the *same footing*, as far as general education is concerned. He has to study at the same hospitals, attend nearly all the same lectures, pass in most of the same subjects, as those required by students in medicine, and, *in addition*, he has to have a special training in dental surgery and manipulative art, which he

acquires at a dental hospital or at a special department in a general hospital, for it is only at the end of the curriculum that the dental student forsakes the beaten track of the medical, and takes to himself a distinct course ; and I mean to say, that when he has gone through his curriculum, and obtained his L.D.S.—which is quite as severe and searching as either the M.R.C.S. or L.R.C.P.—no one could start in the world better equipped for his particular calling.

It is most important that the medical and dental professions should work together in perfect harmony, it is for their mutual advantage and for the good of the public ; the two professions have for their end the same object in view, viz., the alleviation of human suffering, and neither one could exist without the other. See how intimately they are connected, how various diseases of the eye and ear are due to irritation produced by the teeth ; then again impaired digestion, and the evils that proceed therefrom, is more often than not the result of defective dentition ; and lock-jaw, again, is frequently produced by an impacted lower wisdom. These are a few cases in which the skill of the dental surgeon is required, and which shows at once that dentistry is *one of the most important branches* of medicine and surgery, and as such we have a right to demand the *same equality*, and to hold *socially* and *scientifically*, as they do, a position second to none among the learned professions of the day. I feel sure the sister profession of medicine views the case in the same aspect.

Gentlemen, although we have advanced and are still doing so, we must not be content with our present state, we must still labour and work hard, and try, by acquiring more scientific knowledge, interchange of ideas, enlightening the public, and bringing before them more clearly the position of our art, to attain the high level to which we all aspire. I think this can be greatly helped on by the individual manner in which we conduct our own practices ; we should always maintain a dignified but gentlemanly bearing towards our patients, always listening with respect to what they have got to say, and acting in accordance with their wishes as far as it is consistent with skill, but when it is not, give your reasons with firmness, combined with a kind and sympathetic feeling.

Always do good work, for which you are entitled to a fair remuneration ; but never let the fee in any way influence the manner in which you perform your operations—it is much better to know you are doing your best, even if the fee is small, than to be well paid for anything inferior. Be careful to see that your consulting room is bright and cheerful ; do not leave instruments, &c., lying about, indicative of the last patient's sufferings. Be most particular as to cleanliness in every shape and form, "for dull instruments and stupid operators lack an attractive polish," while "clean hands and clean instruments contribute a delightful harmony around the operating chair." One thing in particular I would like to lay great stress on, and that is the treat-

ment of children. As it is our wish that the little ones should be brought to us frequently, it is therefore our duty to make their visits as pleasant as possible. This to a certain extent can be accomplished, by listening to their little whims and fancies, displaying an entertaining and playful manner towards them; and causing them no more pain than is absolutely necessary; and above all, never deceive them—nothing will lose the confidence of a child sooner than deception. And last, but by no means least, be kind and considerate to the poor, always giving them the same amount of care and attention as you would to those who are more fortunate and able to pay a higher fee—in fact, there is nothing lost by giving one's services gratuitously occasionally, it being the duty of us all to do something to alleviate the sufferings of the poorer classes; and those who do not hold honorary public appointments, should try and reserve certain hours once a week, when patients can be treated free of charge.

There is another point that I should like to make a few remarks on, and that is the importance of dental surgeons being attached to all military and naval stations, and also to all public schools and charitable institutions. It is impossible for me to over-estimate the value of such a course being pursued. The dental treatment our soldiers receive at present is quite inadequate to cope with the ravages of decay, and I am sure, to those able to judge, it is quite evident that an immense amount of evil is done by the system that is now adopted, as numberless teeth are sacrificed that in the hands of a qualified specialist would be saved, and not only would our soldiers have better teeth, but improved health and physical strength would be naturally the inevitable result. From what I can understand, the foregoing remarks apply with equal force to the navy. I am glad to say that those in authority are seeing the necessity of appointing dental surgeons to a great many of the public schools and institutions, and such appointments cannot be too highly valued, for the periodical examination of children's teeth is of the highest importance, for it is then irregularities are able to be attended to; caries, in its incipient stage, can be detected, and children can be taught the necessity of proper attention to their teeth, in a hygienic point of view.

I did intend to say a few words on the use and choice of anæsthetics in dental surgery, but with such a distinguished anæsthetist in the room as Dr. Dudley Buxton, my heart fails me, for I know he will treat the subject in a much more able and exhaustive manner than I could even pretend to do. I will therefore conclude my address, by thanking you all for the kind and patient hearing you have given me, and by urging on you the great necessity of uniting in one common bond to uphold the dignity and honour of our profession.

The collection box for the Benevolent Fund was then passed round, and resulted in the addition of £2 11s. 7d. for the uses of the charity.

Dr. BUXTON proposed a vote of thanks to the President for his

practical and useful address. He was quite sure no encomium of his could lend any additional weight to the words they had heard from the President's lips. Such attempt from him (the speaker) was not required. The President's remarks must commend themselves to them for their practical character, for the wide range over which they had passed, and the hopeful way in which they spoke of the future of the profession. He had heard many addresses of that kind—many able addresses—but he had never heard one which had struck him as being so emphatically the right thing said in the right way as the address just given. There were matters in it that might raise controversy, but they would agree with him that much of what had been said would appeal to their convictions. He referred particularly to having a definite dental department attached to the army and navy and public institutions: had it been either relevant or proper he should have said something on that subject. That matter, and the matter of a higher qualification for dentists, were things they should take home with them and ponder upon. The whole address was pregnant with questions that they should consider carefully, and he was quite sure they would agree with him in expressing great thanks to the President for his address, and for the manner in which it had been delivered to them.

Dr. SPENCE seconded the vote of thanks, and said one point which personally interested him in the address was that of the appointment of dentists to public institutions. He was strongly in favour of it. He knew that at the Earlswood Asylum, in Surrey, it had been productive of a great amount of good for some years. He believed also in having a dental surgery department in the army and navy, as being useful to the soldiers and sailors. They lived near a military centre, and perhaps some day they might see Mr. Roberts going past to barracks in a scarlet jacket and cocked hat, as a military dentist.

The vote was put and carried with acclamation.

The PRESIDENT replied, saying he was sincerely obliged to them for the kind manner in which they had received his poor attempt, but whatever it was he had done his best. He could simply say that he thanked them all very much.

Mr. NEWTON PETIT (Southport) then communicated a very rare instance of a patient showing unmistakable evidences of mercurial poisoning from wearing a denture made of red-brown vulcanite. The patient, a lady, who was otherwise in good health, shortly after having had a vulcanite denture inserted complained of salivation, and all the usual symptoms of mercurial poisoning were present. No amalgam fillings were present in the teeth, and the plate being removed, the patient speedily recovered. For a test, the plate was then worn again for a few days, after which she again exhibited symptoms of the previous condition.

Dr. DUDLEY BUXTON afterwards delivered his paper on the "The Practice of Anæsthesia in Oral Surgery—its Dangers, Difficulties and the best Methods of dealing with Them."

Mr. R. F. H. KING (Newark) proposed a vote of thanks to the lecturer. The greatest compliment he thought he could pay Dr. Buxton for his address was to say that he had been anæsthetist for a large institution for something like thirty years, and had sat there, and could sit there, another three hours to hear him. He thoroughly agreed that extensive or heroic operations upon the mouth were not to be encouraged.

Mr. MCADAM (Hereford) seconded the proposition, thanking Dr. Buxton for his extensive and exhaustive paper. He had been induced to come over for the day, for he knew what kind of a lecture they would have.

The PRESIDENT added a few words, saying they could not go away without feeling they had all learned something. He had great pleasure in putting the proposition to the meeting. He was sure they would accord it with hearty thanks.

The vote was heartily carried, and Dr. BUXTON replied.

The Association then adjourned to luncheon at the George Hotel, where the President had made capital arrangements for the entertainment of the visitors. After luncheon the weather for a while was unpromising, but clearing up, a drive was taken through Beaudesert Park, the seat of the Marquis of Anglesey, which was thrown open by permission. In the evening Mr. Reginald Roberts, the newly-elected President, entertained the members and other gentlemen to a banquet at the George Hotel, where a most *recherché* repast had been provided. The President occupied the chair, and was supported by Brigade-surgeon Lieut.-Col. Simon, the Ven. Archdeacon Scott, Dr. Dudley Buxton, Mr. F. C. B. Cave, Mr. Breward Neale, and amongst others were the Mayor of Lichfield (Councillor J. Fowler), the Town Clerk (J. Hodson, Esq.), Councillor A. C. Lomax, J.P., Martin Madan, J.P., Capt. Penderry, Brigade-surgeon Lieut.-Col. Morgan, Rev. G. T. Hayward, Rev. H. O. Bankes, and several of the leading citizens. The President read letters of apology from the Bishop of Lichfield, Sir John Tomes, Sir Edwin Saunders, Canon Mortimore, Col. Heathcote, Mr. Lawson Tait and Major Leonard Darwin (the Unionist candidate). During the banquet an efficient string band played, and added to the pleasure of the gathering.

The PRESIDENT in suitable terms gave the "Royal" toast, and Brigade-surgeon Lieut.-Col. Morgan proposed the "Bishop and Clergy," and coupled with the toast the name of Archdeacon Scott.

The ARCHDEACON, in replying, dwelt upon his family connection with the famous surgeons Heys, of Leeds, and he enumerated the famous names connected with the diocese of Lichfield.

Dr. J. BEVERIDGE SPENCE proposed "The Army and Navy and

Reserve Forces," to which Brigade-sergeant Lieut.-Col. Simon, in responding, said that he must tender them his warmest thanks for the honour they had done him in coupling his name with the toast of the Army and Navy. Although our soldiers serving with the colours are mostly young men compared with those of former years, the same spirit breathes in them that animated their predecessors in the Crimea and during the Indian Mutiny, where they so nobly sustained, untarnished, the honour of the British arms, and gained for themselves a renown which adorns the brightest page of English history.

The auxiliary forces, he thought, were equal to any troops in the kingdom, and deserve the greatest credit for the unvaried assiduity in which they pursue their calling. He was pleased to see that much had been done in respect to the aid of wounded, and it is to be hoped that in our future wars the wounded will be efficiently cared for. Before sitting down there was one thing, and that was he would like to see the Secretary of State for War respectfully approached with the view of appointing qualified dentists to be joined to the Medical Department, and employed in sufficient numbers at all our larger stations, and at least one to each of the brigade depôts within the United Kingdom.

The Ven. ARCHDEACON SCOTT proposed the "Health of the president," a toast which was received with acclamation. The rev. gentleman also begged to couple with the toast the name of Mrs. Roberts.

The PRESIDENT said he was most deeply indebted to his friend Archdeacon Scott for the kind and flattering way in which he had proposed his health. He hardly thought when he came to that city seven years ago he should be occupying that important position. Although regretting they had not elected someone older to preside over them, still he was grateful because he had won the confidence and respect of the members of his own profession, than which nothing could be dearer to him. It gave him the greatest possible pleasure to see so many there that evening, and especially so many of their medical brethren.

Mr. R. F. H. KING proposed the "Medical profession," and dwelt upon the importance of raising the dental profession to its rightful standing.

Mr. H. M. MORGAN replied on behalf of Mr. Lawson Tait, who was prevented attending. He said they looked upon all qualified dental surgeons as their brethren, and they looked upon them equally with all qualified medical practitioners.

Dr. DUDLEY BUXTON then proposed "The Central Counties Branch of the British Dental Association." He said: It is always a pleasant duty to express good wishes on the anniversary of a birthday, and so I do not doubt we shall all be only too happy to embrace the opportunity of drinking to the health of the Central Counties Branch of the British Dental Association, which to-day completes the eighth year of

its existence. At the present time it seems to be almost an impertinence to offer any remarks which vindicate the position of dentistry as a profession, but perhaps, gentlemen, you will bear with me if I venture to bring forward a few facts which show how hard the parent institution of this branch—the British Dental Association—has had to work to bring about the position which you to-day enjoy. You may have seen in exhibitions devoted to the “beauties” of instruments of torture, a weapon called a “key,” which was used in days now happily gone by for “persuading” teeth out of jaws, and either the tooth or the jaw in fragments always followed the application of this appliance! Now is not this key, as compared with the scientific instruments used in dentistry to-day, a fair representation of the old “tooth drawer” as compared with the scientific dentist of this generation! Are these men one and the same—is one the mere development of the other? I venture to think not! The dentist of to-day is nothing if he is not a scientific man; he needs a familiarity with anatomy, physiology, physical science and bacteriology; he should be a chemist and a metallurgist. Now, who made this change? Is it not the British Dental Association, whose name we honour in honouring that of its offspring—the Central Counties Branch? Surely the names of those who, working in season and out of season, made the Association what it is, should be honoured as those of men to whom a debt of gratitude is owed by their day and generation. It is not enough to speak well of our chairman, the President of this branch, because we know he is a good fellow and an honour to any profession; it is not enough to honour the individual. To-day, thanks in large measure to the British Dental Association, it is the *profession* of dentistry which honours its members, and not the members who, as individuals, are honoured independently of, or even in spite of, their calling. But the Association has done more than this—it has compelled from an indifferent nation a recognition of a branch of surgery which for years was relegated to a limbo of ignorant charlatanry.

There are thorns in the side of this great body politic of dentists; there are black sheep and more than shady characters in this, as in every other walk of life; but, gentlemen, Courage! kindly nature will as years go out remove these persons and smooth out the wrinkles their presence causes in the virtuous brows of the British Dental Association! But if we honour the parent we must not forget the offspring—that promising little person, the Central Counties Branch, a child whose prodigious growth for eight years is only too well evidenced by this gathering to-night. The success, the unanimity, the geniality, the size of this meeting speak most eloquently of the well-being of this branch—one, I am told, of the youngest children of the parent Association. Gentlemen, I give you the “British Dental Association” the Central Counties Branch, and couple with it the name of Mr. Breward Neale.

Mr. BREWARD NEALE, in replying, complimented the President on the success of the Annual Meeting. The dentist of to-day was an uncertain quantity. There were many like their valued President, Mr. Roberts, but at the same time there was a large residuum. As they progressed they must demand recognition, and in doing so—and as their President had done—they were conferring a service upon the public.

Mr. A. C. LOMAX proposed the toast "Lichfield Worthies," enumerating the well-known names of celebrities that had been connected with the cathedral city of St. Chad down to Erasmus Darwin. He concluded with a reference to the fact that the Unionist candidate for the Lichfield division was grandson of Erasmus Darwin, and son of Professor Darwin.

Major Darwin, R.E., who should have been present, was unable to attend, and his agent, Mr. E. SHORTT, of the Middle Temple, replied. One or two other toasts brought the proceedings to a close, and the members left by special train for Birmingham.

Western Counties Branch.

ANNUAL MEETING AT PENZANCE.

THE Annual Meeting of the Western Counties Branch of the British Dental Association was held at Penzance for the first time in its history, on Friday, July 29th. The proceedings commenced with the meeting of the council, after which the general meeting was held in the Alverne Hall, Public Buildings. Mr. E. L. Dudley, of Bath, the retiring President, occupied the chair, and there were also present, Messrs. J. H. Gartrell (Penzance) the President-elect, E. E. Brand (Exeter), F. H. Colwill (Ilfracombe), E. R. Gay (Merthyr), T. A. Goard (Exeter), E. Goodman and A. Kendrick (Taunton), W. A. Hunt (Yeovil), H. B. Mason, hon. sec. (Exeter), H. C. Riches (Penarth), G. C. McAdam (Hereford), J. C. Oliver (Cardiff), J. L. Robertson (Cheltenham), J. H. Sanders (Barnstaple), G. Thomson (Torquay), G. W. White (Newport, Mon.), A. R. Phillips (Falmouth), W. Booth Pearsall, president of the Irish branch (Dublin), W. Woodruff, hon. treasurer British Dental Association (London), and the following visitors:—Messrs. G. A. Robinson, W. Badgery, J. Perron, H. Gartrell and W. J. Trembath.

The HON. SECRETARY announced that letters apologizing for non-attendance had been received from Messrs. H. W. Mayne (Plymouth), T. P. Ritchie (Bristol), H. Helyar (Yeovil), W. Helyar (Clifton), R. Brown (Tavistock), H. H. Tuckett (Bath), Turner, C. White, Dr. Stack (Dublin), and Mr. Lennox (Cambridge).

Mr. A. R. Phillips was unanimously elected a member of the Association and the branch.

The SECRETARY then read the following Report of the Council :—

The Council have pleasure in presenting their report to the annual meeting of members. The meeting last year at Bath under Mr. Dudley's presidency was one of the most successful which has been held by the branch. The attendance was large, and in addition to addresses by the retiring President and the President-elect, papers were read by the following gentlemen :—Mr. Peyton Levason, Mr. J. W. Seville, Mr. E. Apperly, Mr. W. R. Ackland and Mr. McAdam; adequate and interesting discussions following in each case. Demonstrations were given and cases shown and described by Mr. Gartrell, Mr. Browne-Mason, Mr. Harding, Mr. C. A. Hayman and Mr. Sanders. The Council feel that the thanks of the members are due to Mr. Dudley, the President, for the care with which all the arrangements were made, as well as for the hospitality which so largely contributed to the pleasure and success of the meeting. The April meeting of the Council was held at Dartmouth, the only subject calling for comment being a resolution which was submitted and unanimously adopted in favour of the branches electing, instead of nominating, as at present, members to the Representative Board. The Council are sorry that the Board has decided not to proceed further in the matter at present; they think the change very desirable and feel sure that it cannot long be delayed.

The Council have to lament the loss, by death, of two prominent members of the branch, Mr. Cooke Parson (Clifton) and Mr. Pearman (Torquay). Mr. Cooke Parson filled the office of President at the Bristol meeting in 1881, and has ever since taken the greatest interest in the proceedings of the branch, remaining a member of the Council up to the time of his decease. The Council feel that in him they have lost a member whose place it will not be easy to fill. Mr. Pearman, although not taking as active a part in the work of the branch, was for some years a member of the Council and his early death is regretted by all who knew him.

Since last year's meeting, in addition to the losses mentioned in the preceding paragraph, four members have resigned, and three have been removed from the list for non-payment of subscriptions. Three new members were elected at Dartmouth and one to-day. The number on the list is now 89, against 85 in the previous year.

The financial state of the branch is satisfactory, there being a balance in hand, according to the treasurer's statement, of £12 14s. The Council have to-day elected Mr. T. A. Goard (Exeter) as hon. sec. of the branch, in the place of Mr. H. B. Mason, who ceases to fill that position at the close of the present meeting.

The Council propose that next year's meeting be held at Cheltenham, and they nominate Mr. J. Lewis Robinson, of that town, as President-elect.

The treasurer's report was also read, and showed a credit balance of £12 14s. The report, which was audited by Messrs. Colwill and White, was adopted, together with the report of the Council.

Messrs. F. H. Colwill and E. Apperly were elected members of the Council, to fill the vacancies caused by death, and Mr. W. Helyar, who retired by rotation, was re-elected.

The RETIRING PRESIDENT delivered a short valedictory address. He remarked that his year of office had passed very quickly and quietly away. While he was sorry to part officially with the branch, he was not sorry to find himself at Penzance on the eve of his holiday. In his opinion that word "holiday" meant more to members of the dental profession than to any other professional men, when they considered what the year's work meant to most of them; the confinement to one room, the long and tedious hours; the tact and forbearance which had to be exercised, he thought it would be acknowledged that all of them were entitled to a holiday when they could get it. They sometimes heard men say that they never took a holiday, but he could not help thinking these men were wrong. If a man took a holiday he (Mr. Dudley) believed that he would be all the better able to attend to his patients when he returned. It only remained for him to thank the members for turning up in such good numbers at the very successful meeting held at Bath last year, and to assure them that he had the welfare of the branch at heart, and should always be glad to do anything to advance its prosperity. He would now make way for Mr. Gartrell, whom he wished every honour in his new post.

Mr. Dudley then vacated the chair, which was taken by Mr. Gartrell.

The PRESIDENT said his first duty was to ask some one to propose a vote of thanks to the retiring president.

Mr. W. A. HUNT had great pleasure in moving a vote of thanks to Mr. Dudley, for the manner in which he had conducted the business of the branch during the past year. They had just heard that the treasurer's accounts had been "audited and found correct," and he might say the same of Mr. Dudley's conduct in the chair. Unfortunately for himself, he had been unable to attend the Bath meeting; but all his friends had told him how well it was conducted and how nicely everything went off.

Mr. GOODMAN seconded. He assured Mr. Hunt that he had missed a great treat by not being present at the Bath meeting. It was one of the most pleasant they had ever had. Mr. Dudley entertained them most hospitably, and they all enjoyed the outing. Personally, he was indebted to Mr. Dudley for one of the happiest days in his life.

The vote of thanks was carried unanimously.

Mr. DUDLEY briefly returned thanks, and took occasion to express his regret at the resignation of the hon. secretary, to whose share, he remarked, most of the hard work had fallen.

The PRESIDENT, who was again warmly applauded on rising, delivered his Presidential address as follows :—

GENTLEMEN,—In assuming the duties of President of the Western Branch of the British Dental Association, I must in the first place thank you very warmly for placing me in this honourable position, for to have the good opinion of the best men in one's profession is something that I do not lightly esteem. When I joined this Association at its commencement, it never entered my mind for a moment that I should ever attain to the honourable position of President, and still less should I have thought that I would ever preside at a meeting of dentists in this far away corner of the country ; and although I assume this position with great diffidence, and a sense of my unworthiness to fill it, yet I ought to feel proud that this is the first dental meeting, and that I am the first president of a meeting of dentists held in this county. I have lately given some consideration as to the claims this county has upon the benefits that modern dentistry confers upon the human race. And I believe from the following statement, you will think that they have considerable claims upon our speciality. The raw materials that we use in our profession are, to a great extent, produced by Cornishmen. I may mention the metals and tin in particular, which is of great use to us, both in the mechanical and surgical departments. One of our demonstrations to-day, is a combination of tin and gold for filling teeth. Gold, the principal metal we use, both for dental plates and for fillings, although not found in this county in sufficient quantity to pay for mining, yet you will find that this precious metal, wherever found, is chiefly mined by Cornishmen. Their knowledge of minerals derived from their training in this county, give them the lead wherever gold and silver mining is carried on successfully. The only gold mine in Great Britain has a Cornishman and one of this neighborhood, for its manager. There are other natural productions found in this county in much greater perfection than in any other part of Her Majesty's dominions, and which are of very great importance to dentistry. These are felspar and kaolin, the two principal ingredients which go to make our porcelain teeth. It is estimated that from twenty-five to thirty millions of these teeth are sold every year, for use, all over the civilised world. The general public are not yet entirely disabused of the notion that ivory and human teeth are what we use for our artificial substitutes. In the thirty-four years that I have been engaged in dentistry, in America and this country, I have never used an ivory or human tooth, but before I finish you will see that I came very near having two human teeth inserted in my own mouth. It is also to a Cornishman and a native of this town, to whom we owe the discovery of the anæsthetic properties of nitrous oxide gas. Sir Humphry Davy, whose monument you may see in coming up the street from the railway station, made this discovery about 1800, and suggested that it

might be valuable in surgical operations. This suggestion was not, however, acted upon till about forty-four years after, and it is with a sense of pride, when considering this subject, that it was the experimental genius of a dental surgeon, Dr. Wells, of Connecticut, U.S., who, observing the anæsthetic properties of nitrous oxide, reduced it to practice by extracting teeth in his own surgery for patients under its influence. Dr. Wells, however, used an imperfect apparatus and did not succeed in introducing it beyond his own surgery, he died shortly after, a disappointed man. Another American dentist, Dr. Morton, about this time was the first to practically use sulphuric ether as an anæsthetic, and this overshadowed nitrous oxide for some years, chiefly, I think, because it required but little apparatus in its use. Ether came into use in the United States with the medical profession. Dr. Morton also used chloric ether because it was less pungent, and from chloric ether Mr. Waldie, of Liverpool, separated chloroform. To dentists must, therefore, be given the credit of reducing to practice the great and merciful discovery of anæsthetics. Ether and chloroform eclipsed and threw nitrous oxide gas into the shade till 1863. In that year another dentist, Dr. Colton, began giving popular lectures on nitrous oxide gas in the Cooper Institute, in New York. At that time I was practising my profession in that city and attended those lectures, and was one of those who went on the platform to inhale the gas for the amusement of the audience and to gratify my own curiosity. Dr. Colton administered the gas only for the amusement of the audience. He had the gas in a silk bag with a mouth piece to place between the lips. In this method of course air was inhaled with the gas and produced that peculiar excitement that only takes place when the gas is mixed with air, and as it was given in the same way by Sir Humphrey Davy it earned for it the common name of laughing gas from the capers and antics performed by those who inhaled it. In this year, sixty-three years after Sir Humphrey Davy's discovery, nitrous oxide was effectually introduced as an anæsthetic. Dr. Colton associated himself with three other dentists in New York for the purpose of devoting their time to the preparation of mouths for sets of artificial teeth. Dentists sent their patients to him to have their teeth extracted and were returned ready for the impression. In a short time nitrous oxide became generally used in the United States for dental operations, but was not introduced in England till 1868. In that year Dr. Evans, also an American dentist, exhibited it as an anæsthetic at the Dental Hospital of London. It has been used in many millions of cases since then, and for short operations such as occur in dental practice it is the best and safest anæsthetic known. It is probably more dangerous to life to extract a tooth, when a cardiac trouble exists, without nitrous oxide than with it. There have only, I believe, been three fatal cases in this country, and in those cases it may not have been the fault of the gas.

The first time chloroform was to be administered at Edinburgh Dr. Simpson was prevented from attending, the operation was proceeded with without the chloroform, and at the first incision the patient died. Nitrous oxide might have saved this patient from the fatal shock ; but if it had been given and death ensued the anæsthetic would have received all the blame. In looking backwards over the subjects that have interested the dental world since our last meeting, it will be noted that some questions have advanced whilst others have receded in the interest they have created among the profession ; for instance, a short time ago implantation attracted a great deal of attention, but we have heard scarcely anything about it for the last year or two ; perhaps this will take another sixty-three years like nitrous oxide to come into general practice. I was among those who took an interest in it, and I may say became a martyr to it, perhaps a short account of my martyrdom will be of some interest to others. In 1887 I was in Washington, United States, attending the International Dental Congress and, becoming acquainted with Dr. Younger who was the first I believe to reduce implantation to practice by drilling holes in the jaw bones, and inserting in these holes other persons' teeth, he suggested my having two upper lateral incisors implanted in the place of those which had been extracted two or three years before. I consented, after inspecting a case of an upper incisor that he had implanted about two years before for a coloured employé of the S.S. White Dental Manufacturing Company, and which appeared to be as perfect as though it had grown there. After searching about Washington they found two teeth for my case, and told me they had been extracted in a case of irregularity from the mouth of a beautiful American lady. The teeth, however, looked very dry, more like the teeth from the jaws of an Egyptian mummy ; but after they had been sterilised I sat in the operating chair before an audience of two or three hundred American and a few European dentists, among them Drs. Cunningham and Walker to see the Britisher had fair play. Dr. Younger operated rapidly, and in six minutes he had the gum slit like a cross, the hole drilled in the alveolus and the beautiful lady's tooth in position ; the other took a little longer, about eight minutes. The whole operation was performed without cocaine or any anæsthetic whatever. I confess it took all my resolution to bear the pain, and my pulse went from 72 to nearly 100. To hold the implanted teeth steady they were tied to the adjoining natural teeth with silk thread. This was where Dr. Younger made his mistake and rendered the operation unsuccessful. The bite was very close, and in spite of all my care the ligatures soon got loose, and although retied, I gave up the attempt to keep the teeth in my mouth longer than ten days.

There should have been a thin soft platina plate struck up to hold the teeth firmly in position, and then the operation might have had a chance of being successful. In last month's *International Dental*

Journal, published in New York, there is a statement that the implanted tooth of the coloured man I have mentioned is yet in his mouth after six years, and to all appearances as perfect as ever. It is not impossible, therefore, but that in a shorter time than it took to introduce nitrous oxide, that we or the coming race of dentists, will be able to implant beautiful sets of teeth in our patients' jaws without pain, and to answer all the functions of mastication, enunciation, &c., as perfectly as their natural set. This will not be more wonderful than imprinting our voices and speech upon a cylinder of wax, by means of the recording disc and stencil of a phonograph, and winding them off again for the edification and amusement of future generations. During the past year, considerable activity has been shown in the mechanical branch of our profession. Crowns and bridges appear to attract as much attention as ever. The great object being to avoid the intolerable objection to wearing plates. There is no doubt this method of supplying substitutes has come to stay, and when applied in suitable cases and efficiently executed, it gives more satisfaction than any method of constructing teeth upon plates. One reason, no doubt, for the success of crowns and bridges is the greatly improved methods now used in the treatment of roots and teeth with dead pulps. The general public are still quite ignorant of the improved methods now in use in conservative dentistry, and often think that they must have teeth and roots sacrificed that can be treated and preserved for a life time.

There have been some articles published by Mr. Booth Pearsall on the mechanical branch of dentistry, and which, I believe, he intends to continue and also publish in book form, to which we shall look forward with much interest. To Mr. Rose of London and Mr. Turner of Glasgow, we are indebted for their efforts to improve the continuous gum process. This base has been my ideal of plate work even since I saw it made in 1863, by Mr. Close, in Dr. John Allen's laboratory in New York. I began making it in that year, and have used it to some extent in my practice to the present. For some time, however, I have varied very considerably from the methods described by the books, and which I find admit of the gum enamel plates being much more generally adapted for ordinary practice. I have not troubled myself much about the methods that have been advocated within the last few years and known as continuous gum facings on vulcanite plates. In the first place, it appears to me to degrade continuous gum to combine it with vulcanite; secondly, the necessity of destroying the vulcanite plate in case of a repair to the gum enamel or teeth. In the method I use, soft platina is discarded entirely, and this is where I think the great mistake has been made in the past; soft platina necessitated covering the whole of the palate with gum enamel to obtain sufficient stiffness, this complicated the construction considerably and added to the weight.

By making the plate of hard platina, No. 4 gauge or thinner for a deep palate, the plate will be sufficiently stiff and strong without covering the palatal portion with gum enamel. A triangular hard platina wire is soldered with fine gold around the rim and along the palatine side of the alveolar ridge to form the boundaries for the gum enamel. Hard platina plates made in this way can also be used for partial pieces, and hard platina bands used, soldered on with fine gold; if they are slightly hammered on a beak iron after the baking is finished they will be sufficiently hard and springy for bands. The gum body and enamel now supplied by Messrs. Ash and Sons are also an improvement, since they are denser and fuse at a lower heat than the American enamels, and quite equal to them in colour. This afternoon at the demonstrations, I shall have pleasure in showing the gas furnace in which we bake the pieces, and also give any further details required. I am of the opinion that we as a profession ought to avoid the use of vulcanite plates as much as possible. I am not afraid of its poisonous qualities that some have written so strongly about, but I feel certain that it produces much greater absorption of the alveolar ridge than any other material, the non-conducting qualities of vulcanite being doubtless the chief cause.

With respect to the position of the dental profession at present, I think it must be considered satisfactory, when we reflect that it is only about fourteen years since we obtained the Act of Parliament which gave us a legal status and established a Dental Register. The British Dental Association was then founded, and numbers at present, I believe, about 1000 members. Unfortunately there had to be admitted on the Dental Register many hundreds of men who had no *bonâ fide* qualifications to practise dentistry. Many hundreds of chemists and chemists' assistants for instance, got on the Dental Register merely on the ground that they had pulled teeth previous to 1878. Also any boy who happened to be employed about a dental laboratory in that year has been able to get on the Register up to last year. They present themselves before the public of course as fully qualified dentists, and in most cases as a good deal better qualified than regular practitioners. This is of course unfair to the public, and an injury to the profession, that those men should be classed with those young men who have passed through a regular curriculum at the colleges, and properly qualified themselves for the discharge of their duties. However, this state of things will gradually decrease. The medical profession at the beginning of this century had to pass through the same experience, and we must be content to follow on the same lines. There are men among the British dentists to whom the profession is greatly indebted for their efforts to elevate the profession. I am not able to boast myself of having very actively assisted them. In the first place I was educated in Canada, and practised for eight years there and in New York before I located in this my native town, and here I am so far

away from the great centres of dental activity that I have only been an humble soldier in the ranks of the British Dental Association. In concluding, gentlemen, allow me to welcome you to this town, with the hope that your visit will repay you for the long distance some of you have travelled, in giving you the opportunity of viewing the beautiful coast scenery, and other objects of interest which abound in the neighbourhood.

Mr. F. H. BALKWILL proposed a vote of thanks to the President for his very able and interesting address. He was sure that the estimation in which their President was held by the profession would receive expression in this vote of thanks.

The vote of thanks was carried unanimously.

The PRESIDENT, in reply, assured the members that he was much obliged for the kind way in which his name had been mentioned, and he could only say that during his year of office he would do what he could to further the interests of the British Dental Association, and those of the Western Branch in particular.

Mr. W. A. HUNT moved a cordial vote of thanks to Mr. H. B. Mason for the services rendered by him to the branch in the capacity of Secretary.

Mr. GOODMAN seconded and Mr. KENDRICK supported the vote of thanks, which was unanimously agreed to.

Mr. MASON said he had already thanked the Council for a similar resolution, and he could do no more than thank the members for the kindness he had received at their hands since he had been Secretary. He was sorry in many ways that he had to give up the work, but he felt that he had done his share, and that it would be for the good of the branch to have a secretary who could devote more time to the duties than he had been able to do. He should be very pleased to do anything that lay in his power to help his successor to get into the work.

Mr. W. BOOTH PEARSALL, F.R.C.S.I., then read a paper on "Our Dental Museums," which we publish as an Original Communication.

An adjournment was subsequently made to the lecture hall, where photographs illustrative of the lecture were shown by means of the oxy-hydrogen lantern, which was manipulated by Mr. Hunt. The members afterwards returned to the Alverne Hall, where a short discussion took place.

Mr. WOODRUFF thought they must all feel deeply indebted to Mr. Pearsall for the trouble he had taken in getting up his paper, and for the facts he had brought under their notice. He dared say a great many of them wished they had the same amount of enthusiasm as Mr. Pearsall, for they would then doubtless be able to get together a museum really worthy of the profession. Mr. Woodruff felt that some of Mr. Pearsall's strictures with regard to the London collection and

the proposed collection of the Odontological association were rather severe, but probably they were to a great extent merited. At the same time the sting might be taken out of some of Mr. Pearsall's remarks by the fact that Edinburgh and Dublin were not quite perfect. When one came to realise the amount of work that the getting together of these collections entailed upon individuals, one could not be much surprised that they had been neglected. Of course there were other difficulties in the way besides this individual matter. With regard to the collection of the Odontological Society, there were at the present time several very pressing difficulties. Among others the pecuniary difficulty must not be overlooked. Again, there was at the present juncture considerable uncertainty as to where the society should be placed. No doubt many present knew the society was now under notice to quit Leicester Square, and there was great difficulty in getting rooms which would meet the requirements of the society. The funds at the society's disposal were not by any means so large as they might be, and the same difficulty applied to the formation of anything like a permanent collection in connection with the British Dental Association. He thought such collections would be very useful and interesting, and that they would advance the education of the profession generally, but unfortunately there was always the difficulty of ways and means to contend with. For his own part he did not doubt that if they all had Mr. Pearsall's enthusiasm on this subject they would put their hands in their pockets, and the difficulty would be a difficulty no longer. He was sorry to say, however, that they did not all possess that enthusiasm, but the ideal placed before them by Mr. Pearsall would no doubt help them, and in years to come they might be able to attain something like it.

Mr. HUNT considered Mr. Pearsall's paper was a very exhaustive one, and would be productive of much good in the future. He happened to know Mr. Pearsall's collection, and an admirable collection it was. He thought Mr. Pearsall had given them grounds for hoping that the members of the profession would stir themselves to see what could be done to carry out the excellent suggestions made in his paper. The remarks in regard to teaching preparation in particular he considered to be most practical, and he hoped to see them carried out. Such preparation would be of inestimable value to students.

Mr. PEARSALL regretted that there had not been more discussion on his paper. It might be that the members were rather taken by surprise at having these details to consider. With regard to what had fallen from Mr. Woodruff, he was very glad to hear the kind remarks that gentleman had made, and he assured him that no hostile feelings had prompted his criticisms on the collection in London. He (Mr. Pearsall) had several times made efforts to see it, but had signally failed. The glass cases in Dublin were not made to fit a room, but a room was to be built, and if they could do that it could

be done in London. He would also remark that a museum, if they went about it in a proper spirit, was not necessarily a costly thing. The money they earned in Dublin by teaching students was applied to this purpose, and for the amount of money that was spent in Leicester Square they might have a good school museum. Mr. Woodruff might make his mind quite easy; before Christmas they would have a working museum for the students in Dublin. In his opinion the true solution of the difficulty would be that the British Dental Association and the Odontological Society should become one; they might make a silver or a golden wedding of it. It was a pity to see the profession not a solid body; and he thought they would pay larger subscriptions to the Association in order to carry out the objects for which it existed. Someone must do the work, and if not the Odontological Society, why not the British Dental Association? They could not show in any better way what Sir J. Tomes had done for them than by putting his work where it could be seen of all men; specimens were a better memorial than a portrait. A man could not leave a better monument behind him than a first class museum. It was not every individual who could get together such a collection, but men collectively could do it, and he would ask any of them who came across remarkable casts to send them to him, and he would take care that proper notice was taken of them. The only way in which they could really advance knowledge was by having a very large collection of casts. He intended to have sent a large collection to Manchester but he had really not had time to see to it, as the proper time to organize a museum was the winter. However, he was sending to Manchester the most interesting abnormal specimens belonging to the Irish collection. They must face the difficulties which were in the way; they must clamber over them and knock them away. It was useless to say there was no money to be had; there were lots of men who would give a £5 note apiece. In conclusion, he thanked them for the way in which they had received his paper, and expressed the hope that in a few months they would really have something like a museum.

The meeting then adjourned for lunch.

DEMONSTRATIONS, &c.

In the afternoon demonstrations were given at the President's residence by Mr. J. L. Robertson (a "Screw Crown"), Mr. T. T. Genge ("Tin and Gold Filling"), and C. Riches ("Gold Contour"). Subsequently Mr. W. A. Hunt exhibited in the Lecture Hall, by the oxyhydrogen lantern, some interesting examples of photo-micrographs, illustrating the method by which the minute structures of any objects can be shown to large audiences.

THE DINNER.

The dinner was held in the evening, at the Union Hotel. The President occupied the chair, and there was a full attendance of the members who had been present at the meetings. The invited guests present were the Mayor of Penzance (Alderman J. Caldwell), the Rev. Prebendary Hedgeland, Dr. Hugh Montgomery, Messrs. G. B. Millet, (Medical Officer for the borough), J. Symons, R. Hosking, J. Mudge, P. Marrack, G. R. Mockridge, C. S. Antill, J. Truscott, and H. R. H. Gibbons.

The loyal toasts having been drunk with musical honours, Mr. F. H. BALKWILL proposed "The Bishop and Clergy," coupled with the name of the Rev. Prebendary Hedgeland.

Mr. E. L. DUDLEY proposed "The Army, Navy, and Reserve Forces," which was responded to by Major MARRACK, who thanked the company on behalf of the Services, for the kind way in which the toast had been received.

Dr. ROASE proposed the toast of the evening, "The British Dental Association." He said it was not unnaturally with some diffidence, but at the same time with a high sense of the honour allotted to him, that he rose to propose that toast. He did so the more cheerfully, because he had that day discovered several fresh points of contact between himself and the dental profession. In the first place, he had discovered that he had a right to be placed on the register, because he certainly drew teeth before 1878. He had discovered another point of contact between himself and the dental profession, for when he commenced his curriculum in London, he went to a hospital which was largely affected by dental students—the Middlesex Hospital—and among his most pleasant recollections were those of the young students who represented what had since turned out to be a great reforming body, the members of which had done as much as any other set of men to raise the dental profession to its present high position; not only in the minds of professional men, but in the public mind. He was pleased to find that one of the gentlemen associated with the response to this toast, was also a member of the Middlesex Hospital; he referred to the gentleman on his immediate left (Mr. Woodruff), and it was suggested to him that even the President-elect was not entirely unacquainted with that establishment. All these were little personal facts, which made it not only an honour but a distinct pleasure to him to have to propose this toast. Medical men had no difficulty in understanding and appreciating the work done by the dental profession. They knew how much the health of that region which they were daily exploring, meant to the average normal man. He must congratulate them on the ever-increasing interest taken by the public in their work, as shown by the fact that the Press devoted more space to their proceedings than was formerly the case. The

public, he thought, looked to the dental profession in the future, more and more to assert itself as a real live force working for humanity. He could not conceive any better way in which the profession could go about educating the public in this matter, than by meetings such as they had had that day—meetings at which they embodied in their programme some question which the public could follow with intelligent interest.

He should think that a systematic investigation into the effect of Board Schools on the teeth of children would be interesting. There was yet another idea which might form the subject of enquiry; that we were all born with jaws which were much too small, and so could not find room for our teeth. They, the medical profession, recognised that the dental profession should be a speciality, and for his part he thought the less they had to do with it the better it would be. Certainly, if they wanted to lose the confidence of their child-patients he did not know a surer way than by pulling out their teeth, or making interesting attempts to stop them. But he was digressing; the toast was "The British Dental Association." The Western Branch was so much like the Association that they could not tell 't'other from which; they could not say which was the father and which the son, or whether they were twins. As a medical man, he must be allowed to congratulate them on their choice of a President. It would be mere impertinence on his (Dr. Boase's) part to speak of Mr. Gartrell's professional attainments, but he could not withhold from himself the pleasure of alluding to Mr. Gartrell's personal qualities, which would make him a good President anywhere. He had much pleasure in proposing the toast with which he coupled the names of Mr. Woodruff and Mr. Pearsall.

Mr. W. H. WOODRUFF, who first responded, said he felt very much the honour of being called upon to speak to such a toast as that of "The British Dental Association." He was not quite a stranger amongst them—some of the members of the branch he had met personally in London, and he was pretty well known to them all one way or another. Although the Association was primarily established with the object of seeing that the Dental Act was properly carried out, and by persons who had been properly educated for the profession, there was another object which it had also attained—a social object. The members of the different branches were brought together occasionally in meetings such as they had that day, and thus came to know one another better than it would have been possible for them to do had the Association never existed.

Mr. W. BOOTH PEARSALL, who was heartily received, hoped the few words which he had to say would not fall on barren ground. He might be expected, as a medical man and also a dentist, to dissent from some of the remarks made by Mr. Boase, though he did not wish to confine himself to discussion. Mr. Boase might be glad to

hear that the Association had taken care to investigate the condition of Board School children. It would be a great advantage to Penzance if a few distinguished persons interested in the town would, in connection with the meeting of the branch, make an endeavour to get a dental staff appointed to the general infirmary. It was very difficult indeed for one individual to do the service required by a community, and wherever there was an infirmary—especially did this remark apply to the larger towns—a dental staff should be established. By this he meant that a dental surgeon should be in attendance every morning, as soon as the institution was open to the public, because it was impossible for any one man, even with an enormous sacrifice of time, to do the duty now expected of him as dental surgeon to any large infirmary, and therefore, said that it was better that a number of men should be engaged for the dental work of such institutions. But, then, they were confronted with the painful difficulty that the medical staff did not want them. The mechanical ability of the dental profession had been of service to the faculty in more ways than one, and the objects of the British Dental Association, like those of the British Medical Association, were really the same—to protect their professional interests and to develop the individual talent of the members. These were the objects of the Dental Association, apart from its political purpose, which was to see that the Dental Act was properly observed.

Mr. W. A. HUNT, in submitting "The Medical Profession," said he was not aware that such a toast was to be placed in his hands, he being himself a member of the medical profession. That the work of the medical profession was an arduous work was evidenced by the published mortality tables, which showed that members of it lived but a very short time compared with the members of other professions. That fact would speak volumes in itself, and therefore it was that Mr. Hunt made the assertion that the medical profession was not sufficiently esteemed by the public. But they had the solid satisfaction of knowing that they had done their duty, and that if they could not always command success they could do more—deserve it. He noticed in the toast list that a most appropriate song was down before the response from Dr. Montgomery came—"Good Company," and he asked members of the branch present to drink to the "Good Company" of the medical profession, for they had proved that the medicos who had favoured them with their presence were indeed good company.

Dr. HUGH MONTGOMERIE said he considered it a great honour to be called upon to respond to the toast, because he believed he was the junior of the medical profession in Penzance, both in age and in professional standing. He was very glad, and was quite sure his brother practitioners were, to meet the members of the Western Branch of the British Dental Association, and hoped they would have

a pleasant visit and meeting. He looked on dentists as brothers in arms. Dental practitioners were educated in much the same way as medical men were educated, but when they got to the end of their curriculum they diverged and became specialists. They were therefore on an equality with the medical profession. He thought it would be extremely good if compulsory inspection of the teeth took place very much in the same way as compulsory vaccination takes place. There was an old saying *mens sana in corpore sano*, and Dr. Montgomerie thought they might very well change that now to *dens sanus in corpore sano*. At the West Cornwall Dispensary and Infirmary he saw some 1300 patients in the year,—well, all of them came before him or before his father, who ought to have been there that night,—and really it was very melancholy to see the condition of the teeth of the people in West Cornwall.

Mr. G. C. MCADAM proposed "The Corporation of Penzance," which was responded to by the MAYOR OF PENZANCE.

Mr. PEARSALL said that it fell to his lot to propose the health of the President. He had come to Penzance to support his friend Mr. Gartrell, and it had been a very great pleasure to him to brave the stormy ocean to come again amongst the pleasant Cornish faces. The branch had done itself honour in selecting Mr. Gartrell as its President. Unfortunately for Mr. Gartrell, he was an extremely modest man; he had not done what many men of much less ability had done—paraded himself before the world—but he was a man of great ability and of inventive genius, who had been a friend to every inquiring member of his profession; there was nothing that he had invented, nothing upon which his genius had been expended, that he had not most generously explained to those who sought after the truth. Although possessed of a qualification that some people honoured very much, he did not in any way consider that he suffered by coming into contact with men like Mr. Gartrell, to whom he owed many a debt of gratitude. Mr. Gartrell's great experience had been earned at his own expense; he had not borrowed his ideas from other people, but had conceived them and developed them himself. It was therefore with particular pleasure that he proposed the President's health, because earnest men like Mr. Gartrell were not to be met with every day. The dental profession was a progressive one, and Mr. Gartrell had done much by his unaided efforts to help on the progress which had already been made. Mr. Gartrell had helped the Association in a very remarkable way by his knowledge and his inventions, which he had never tried to keep to himself, and the consequence was that the members of the Association interested in mechanical dentistry had profited much by his work.

The toast was accorded with musical honours.

The PRESIDENT, replying, said he had intended making what would be for him a little speech, but he found that the hour was too late for him

to attempt anything of the sort. Mr. Pearsall had been too kind in his remarks upon any little endeavours he (Mr. Gartrell) had made in the dental world,—but he must confine himself to thanking the members for the support they had given the meeting of the Western Branch of the Association at Penzance. Mr. Woodruff came from London specially to attend, and Mr. Pearsall had crossed the briny ocean to meet them. To these gentlemen and to the members of the branch who were present he extended his best thanks for the support they had rendered in the proceedings of the day. Mr. Pearsall deserved the best thanks of the members for the able and elaborate paper that he read in the morning, and Mr. Hunt for the interesting demonstrations which he had made. Having thanked the Mayor for his attendance, Mr. Gartrell concluded by saying that whenever the members of the branch visited Penzance again, whether in their collective or their individual capacity, he should be very glad to see them.

Mr. ROBERTSON briefly toasted the "Visitors," for whom Mr. GIBBONS replied. Songs were sung during the evening by Messrs. C. S. Anthill, H. R. H. Gibbons, G. R. Mockridge, and J. Truscott, the invited guests of the President, and Mr. Gibbons played a violin solo.

The dinner was brought to a close with three hearty cheers being given to Mr. and Mrs. Gartrell and the retiring secretary, Mr. H. B. Mason.

ORIGINAL COMMUNICATIONS.

Valedictory Address.*

By J. SMITH TURNER, M.R.C.S., L.D.S.

GENTLEMEN,—There are occasions when some of the peculiarities of our existence seem to force themselves upon our attention with more than ordinary persistence, epochs—in our lives in which we try to survey, not only the present and the past, but, with the daring of ignorance, try to pierce into the future. It is then we find that what we call the present is but a name, and that the past and the future, are for ever linked together by the little moment called now. The briefest act of our lives is but a transference from the past to the future, and ere the second pulse has throbbed, the beginning and the end of the act are alike swallowed up in the great what has been. "We never step in the same leather twice," says the Italian proverb. Change—continued and unrelenting change—is the condition of the most active

* Delivered at the Annual Meeting, held at Manchester on August 11th, 1892.

as well as the most placid existence, of the silent lake, of the mountain torrent, and of the great rocks themselves. What is true of persons and things is true of countries and nations, and of all combinations of peoples, from empires down to societies and associations, and history alone rescues the past from oblivion.

Thirteen years ago the British Dental Association was called into existence by the force of circumstances ; it was the outcome of a great social change which had been effected amongst a certain number of men calling themselves dentists. I need not trouble you with its history, for all of you know it. One year ago you did me the honour to elect me as your president, and in looking back I feel that the year which is gone has been like a pulse-throb in the life of our corporate body—a brief space of time connecting the past with the future of what I trust may be a long long life.

To say that our Association is the same now as it was at its inception would be to deceive ourselves. It, too, has partaken of the inevitable change which is really the essence of life. It has grown in numbers and in influence, and although there must naturally be a limit to its numerical growth, it is impossible to circumscribe its influence, either on ourselves or on the public at large. Whether this influence will be for good or for evil, whether it will redound to our credit or to our discredit, to our honour or to our disgrace, is a question of some moment to most of us, and a question more easily asked than answered. This much, however, I may say with assurance, that if intriguing for office, clamouring for power, forcing of certain courses of action upon the Association by grasping every opportunity of so doing, and by persistent agitation, become the characteristic conduct of our members, then the wholesome influence and utility of our Association is doomed to extinction, and although we may exist by the force of circumstances and numbers, we will become a name and nothing more, at least I trust nothing more—let us hope not a by-word.

When our Association was first formed our executive was placed in office by virtue of their position as having been members of the Dental Reform Committee, which, after the passing of the Dentists Act, had just performed the happy dispatch. It was considered that these gentlemen who had so far succeeded, would not only be willing, but anxious to conserve the fruits of their labour, and to form an association fitted for that object. When the by laws of the Association were formed, provision was made

for the members of the executive retiring by rotation, and at this moment there are on the list of the executive, containing fifty-eight names, only five who were members of the Dental Reform Committee, and of these, two are honorary members of the Representative Board. From the commencement until now we have had three presidents of the Representative Board. This office is held for three years, and in one instance only has there been a re-election to that post—that was in the case of Sir John Tomes, a gentleman, I venture to say, whom we would only be too happy to elect again if we had the chance. Of the Representative Board as at present constituted, there are nineteen elected members from the provinces and twelve elected residents in London. There are also nineteen *ex officio* members from the provinces, while from London there are seven, so that the elected members numbering nineteen, and the *ex officio* members numbering nineteen from the provinces, gives a total of thirty-eight provincial members on the Board, while the *ex officio* and elected London members combined number twenty. With these facts before us, it appears to me that the balance of representation is much in favour of the provinces, and that the changes on the Representative Board have been quite as rapid as could be desired for the welfare of the Association. If the Representative Board has not done all that was expected of it, we may account for the fact by saying that the work to be done has proved more difficult than was anticipated, and perhaps it may be that the expectations have been too great. In the infancy of our Association, as the time came round for members to retire from the executive, and as branches were formed in different districts, there was some difficulty in finding members willing to undertake the responsibilities of office. The work was new to most of us, and so also was the onerous task of speaking at our annual dinners. Now I think that the speaking on these occasions will bear favourable comparison with that at any gatherings of a similar nature. The difficulty of finding members willing to join the executive has also passed away, indeed it is a feeling widely diffused amongst us that the changes are not frequent enough, and that greater opportunities should be given for members to join the executive both in the branches and on the Representative Board. I think that these two conditions are something to be proud of, and their existence shows that our Association has not been useless. But, gentlemen, I would remind you that membership alone does not

qualify a man for such positions, and I cannot too strongly deprecate any scheming for place, or any discontent, because a greater number of members cannot partake of the questionable sweets of office. The old story of the other king who arose and knew not Joseph has more than once repeated itself since the time of Pharaoh, and experience even in small things is useful, and not to be gained without time and labour. I believe that any man who can usefully serve the Association or its branches will win his spurs, and gradually but surely come to the front and be chosen by his colleagues to represent them on our councils, and only under such circumstances is office honourable.

When first I had an interview with Sir John Tomes regarding the desirability of forming an association, the idea had fully possessed his mind, and he was prepared to assist to the utmost in so doing, provided that our principles and methods should be strictly professional in their character. I believe we have hitherto been fairly faithful to these conditions, although perhaps not uniformly so. The lapses have, however, been very excusable, for youth is impatient, both in individuals and in associations, and well-meaning zeal should be readily condoned, even though it lead to temporary mischief. Nevertheless, we should be careful in following methods common in their nature and liable to abuse, methods which lend themselves to the charlatan as readily as to the honest and well-intentioned practitioner, and which may easily bear the imputation of interested motives. I believe that if such proceedings be sanctioned by us, the dignity and utility of our Association will be seriously impaired, at least in the direction in which it is most desirable that we should advance, and that any breath of popular applause which might be secured in one direction would never be balanced by the drawback in another. Again, it should be remembered that there is no finality in any such measures—not only must they be continuous in their application, but also in their development, and I believe that such development must be in a downward direction.

“A little knowledge is a dangerous thing.”

There is no more dangerous method of education than that of teaching people to imagine that in a jingle of words, and in a few isolated and dimly comprehended facts, they possess knowledge.

With regard to the work of the past year and the affairs

of the Association. It would be but a thrice-told tale were I to enter into this matter, after the lucid and able statements of our esteemed hon. secretary and treasurer. For myself, it only remains to thank you for having tolerated me in an official capacity for yet another year. I again make my acknowledgments to you for the honour you have done me, and confess—what few of you may be inclined to believe—that from the commencement of my career amongst you to this its termination, I have been continually haunted by a deep sense of my many deficiencies. I hope that you will forgive them all as sincerely as I regret them deeply. To all those who have supported and encouraged me during my many years of service to the Association, I return my heartfelt thanks. In making way for my esteemed friend, Mr. Quinby, I believe that I am now handing over to him the British Dental Association with its constitution unaltered and unimpaired, and in its integrity even as I received it from my predecessor a year ago.

Inaugural Address.*

BY H. C. QUINBY, L.D.S.I.

GENTLEMEN OF THE BRITISH DENTAL ASSOCIATION,—My first duty is to thank you for the proud position in which you have so kindly and unanimously placed me here to-day. I thank you all the more because I believe that, while conferring the highest honour in your gift upon my humble self, you have intended to reflect honour upon the type of American dentistry which was so well represented on this side of the Atlantic when I came to England, early in the first decade of the second half of the century which is now drawing to a close. I believe I am right in saying that I am the oldest representative of American nationality now in practice in this country, and while there are some features in the present aspect of what is called American dentistry which American dentists are not proud of, I am quite sure that there will be a very general feeling of pride in the fact that, on the first occasion in which the members of this Association have seen fit to elect an alien to sit in the Presidential chair, the choice has fallen upon an American.

* Delivered at the Annual Meeting, held at Manchester, August 11th, 1892.

I trust you will pardon me if I call your attention for a few minutes to some of the causes of the change that has taken place in the estimation in which American practice is held now, compared to what it was forty years ago. I wish to speak of some of the phases of what I must call unprofessional conduct, which have brought discredit upon American dentists abroad and at home—a discredit which is deeply felt by all the earnest, conscientious members of our profession (and it is scarcely necessary to say that there are many such in America), who will always jealously defend the interests and prestige of our speciality, both there and everywhere.

But, before I proceed to mention the causes which have prejudiced the professional estimation of American practice, you must allow me to remind you of the immense strides which yourselves have made in scientific conservative practice in the four decades to which I have alluded. We should not lose sight of the fact that everything is comparative in education and training. If we are climbing an eminence we look up from the lower levels, and as we ascend we may begin to look down, or at least to take comfort in the assurance that, although we may not have reached the highest peak, and still feel that our energies are not exhausted, there is abundant evidence that we have ascended to the highest level yet attained. I need not detain you another moment to enlarge upon the progress of dental science here, nor do I intend to allude to what has been done in this respect in my own country, but will pass at once to the subject I have indicated.

There is no profession without its camp followers, a parasitic class which never by any chance reflects credit upon the professional prestige and dignity. This class will always be found hanging upon the rear of the main army, ready to pick up such crumbs of emolument as it may be able to seize, and would not have any scruples about carrying off the whole loaf if circumstances should permit. Living in a state of warfare against their own kind, as well as against the community, they naturally acquire a certain sharpness of intellect, which, with a limited knowledge of technique, makes it quite possible for them to impose upon the credulous and ignorant.

Another class, not much more creditable, having obtained what appears to be a legal right to a place in the ranks, but lacking the true professional feeling, drifts away into practices which no man of standing will countenance. Some of this class have no

capacity to govern themselves, and fall into the hands of those unscrupulous practitioners who are always on the watch for opportunities to make use of brains which have been able to gain a qualification, but are not regulated by that moral rectitude which is so necessary to keep ability in straight paths. Such men soon lose their self-respect (which might, under wholesome direction, serve in the place of honourable principle) and rapidly degenerate into mere hacks in the team of quackery and charlatanism.

There is also too much reason to think that a traffic in illegitimate diplomas has been recently revived—if indeed it has ever ceased to exist within the last thirty years—and these, which are purely a matter of purchase, without the too troublesome formality of examination, and which would be useless to a respectable practitioner, are made to pass as current coin for advertising purposes, where genuineness is not considered essential.

It is also much to be regretted, that the decision arrived at by the assembled faculties of the American Dental Colleges—to the effect that no diplomas should be granted *in absentia*, or without full compliance with the specified curriculum—has not been so religiously adhered to as it might have been. It is reported that even an honorary degree, granted by the oldest dental college in America (though why an honorary degree nobody can understand) has been used in the most unscrupulous manner for advertising purposes, both in the public papers and by circular.

The restrictions on registration should be such as to prevent the great mass of these men from practising on their own account in this country, but an evasion of this part of the Dentists Act, by means of a system called "covering," has been for some time rather extensively carried on by certain men who are not eligible for membership of this Association. Under this system, which is manifestly contrary to the spirit of the Act, I am given to understand that numbers of young Americans possessing qualifications, or what appear to be such, and have been advertised as American qualifications, even giving the names of the persons supposed to be so qualified, are employed in dental practice, although none of them are registered; this want being covered by the sole registration of their employer or manager. Certainly none but those who are totally destitute of all the instinctive aspirations which elevate and ennoble the professional life could engage in a system of practice which involved advertising in the public newspapers. We are all much indebted to the press—we shall be pleased to

have our doings here to-day duly chronicled in the newspapers of to-morrow, but we shall none of us contribute to the income of those newspapers by advertising our individual professional qualifications and skill in their columns. It is a well-recognised principle in the liberal professions, that advertising bars from membership of all professional societies and associations, those who make use of such public announcements of themselves, and the advantages they claim to be able to give their patients or clients—in short, it simply means professional ostracism, and it is quite time that the public should know this, and be able to judge whether men who have forfeited, or never obtained, professional recognition are to be trusted to perform professional duties.

We cannot, however, ignore the fact that, at present, the constant reiteration of a phrase or a statement does make an impression on a very credulous portion of the public, and it appears to be just now the policy of these advertising institutions to keep a certain phrase constantly before the public eye, and to convey the idea that it is essentially an American class of work, whence arises the necessity that the employees should be Americans to give some appearance of consistency to the deception. Of course I allude to the stock phrase "Crown, Bar, and Bridge Work" as being the latest form of imposition upon that portion of the public which takes its ideas of dentistry from advertisements. It is evidently intended to suggest a *new* development of dental science, by which any broken down and hopeless antiquities in the mouth may be restored to permanent usefulness and beauty. We know what utter nonsense this is; that in reality this phrase means very little that is new in dental practice, for although we find many cases where artificial crowns can be used with much comfort and satisfaction to patient and operator, they are not by any means a *new* idea, and it is very doubtful whether the majority of the new methods are practically any more successful than those which have been known and practised for the best part of a century.

The application of bridge work must of course always be limited, for it is certain to be a failure unless it can be everywhere so firmly supported that there can be no possibility of leverage; and we do not find many cases where these conditions can be relied on for more than two or three teeth. Even when the conditions are favourable for bridge work, the care necessary to prevent disastrous results is only possible to those who have had a thorough

training. Like many other fads which have been taken up by professional enthusiasts, and pushed into prominence by charlatans for advertising purposes, these will live but a short life as a panacea for all dental ills and defects, but they will always continue to be—as they have been, in a more or less perfect form, as long as our oldest practitioners can remember—valuable remedies, to be selected by common sense and applied by skill.

Another subject which has sorely exercised the minds of our American colleagues of late, has been the ethical effect upon professional character and standing, of the taking out of patents, on ideas and methods which are purely professional in their application. I think we may admit that the Americans are an inventive people, and that the great facilities given by the United States Government for the procuring of patent rights have done much to develop and stimulate this talent. It was the purpose of the statesmen who framed the patent laws, that they should have the effect of encouraging a talent which the American colonists inherited from their British ancestors, but which had thriven well from the necessity which makes men, who are placed in new surroundings, where additional labour is unattainable, think out and contrive ways and means to increase the capabilities of their own hands. This was a proper and statesmanlike policy, as its effect must be to increase the legitimate trade of the country; but we have nothing to do with this view of the matter, except that, while developing the faculties of men in other directions, it was not likely that the professional brains would lie dormant, and it is well known that all branches of surgery have benefited much by the invention of instruments and appliances, which have helped to enlarge the scope of surgical work; and our speciality has not been neglected by inventive minds.

But in the case of the surgical appliances there does not appear to have been, to any noticeable extent, if at all, any reservation of rights by the inventor; the ideas, the methods, and the means for working them out have been freely and fully explained and illustrated in the professional journals, and the instrument makers have loyally exercised their best skill to perfect the instruments suggested by the surgeon, who in due time receives, and is satisfied with, the approval and thanks of his colleagues.

I am sorry to say, however, that this has not been the case in too many instances with the instruments and preparations for the use of our branch of surgery in America. About thirty-four or

five years ago (I am not certain of the precise date), the idea that vulcanized caoutchouc might be used as a base for some of our prosthetic appliances occurred to an American dental practitioner, who carefully worked out the details of his conception, so that when he came to this country to introduce his processes in 1858, the idea had reached a very creditable stage of development, sufficiently so to be workable and very quickly to take the place of plates carved from the tusk of the walrus, which were in common use at that date.

This idea had scarcely become practically available for dental purposes, when a wealthy company, which held patent rights for the manufacture of vulcanized india-rubber goods in America, claimed that the process was an infringement on their patents, which, they contended, covered the application of this material to all purposes in which the process of vulcanizing was an essential part. This contention was sustained by the law courts, and the company immediately levied a royalty upon the use of vulcanite for dental purposes, and maintained it as long as a renewal of their patents could be obtained; thus very seriously interfering with the use of a valuable material which they could not themselves apply for professional purposes, and doubtless realizing a considerable amount of money from their tax upon the dentists.

Perhaps because of some exaggerated idea of the value of these royalties (though I doubt whether any real knowledge of what they did amount to, or whether the inventor of the process received anything from the company for his discovery, ever became public), but certainly from about the time the Goodyear Company established its right to a royalty on every piece of vulcanite work done by a dentist, applications began to be sent in for patents on all sorts of instruments, appliances, methods and preparations for dental purposes, and still continue to be asked for, to the intense mortification of all good wishers for the professional standing of our speciality. Individuals are hawking their inventions all over the country, selling so-called rights to use their methods, and giving clinical lectures, for which a fee is charged, to explain their processes to any man (professional or unprofessional) who will attend.

It is from these itinerant clinical lecturers that some sharp practitioners have taken the idea of making themselves commercial travellers to sell patent rights for all sorts of inventions for dental purposes, the greater part of which are of very doubtful

value under any circumstances, but certainly not worth paying a royalty for. We have seen some of these men in this country, and even given them an opportunity to speak about their processes at some of our Society meetings, and perhaps we may have discovered that they were afflicted with shyness and inclined "to hide their light under a bushel," but whether we have, or have not, made this discovery, we have seen enough to enable us to understand that our American friends are not proud of them as professional men.

It is bad enough for men, claiming a professional standing, to become hawkers for the disposal of their own patented inventions, but it is, if possible, still more unsatisfactory when they take out patents and dispose of them to the large manufacturing companies who make and prepare instruments and materials for dental purposes. It is stated by some recent writers on this peculiar phase of professional ethics, that the manufacturing companies are eager buyers of professional patents, but that when they have become owners of the patent rights, they choose their own time to introduce the invention. This is without doubt good business policy, but it means that if a new invention is likely to interfere with the sale of, or be an improvement upon, some other invention which is in process of manufacture, or is still saleable from its merits, the later acquisition will be suppressed until a more favourable moment, in a commercial point of view, for its introduction. Thus the profession may be deprived of a benefit which might accrue from the use of a valuable invention, but it may also be induced to purchase an inferior article that will quickly be superseded by something better.

One might understand that a man would feel it to be worthwhile to give up professional practice and take out a patent on some grand invention, such for instance as one of the perfected dental engines now in use, if it were possible for one human brain to conceive the perfected machine; but these completed machines are the result of a gradual growth of improvement upon improvement, until there may be half a dozen patents upon them, each patent perhaps paying some trifling royalty to the inventor, or, more probably, sold for a lump sum to the manufacturer, so that whatever credit there might be for the thought is the property of the latter absolutely, and the name of the former is never known. Surely "the game is not worth the candle" to the professional man, although it may be to the manufacturers, and it

would be far better to publish the thought to the professional world at once, with drawings and specifications, and thus throw open the manufacture to competition, than to lower one's professional dignity for almost nothing.

These are, I believe, some of the reasons why the word American, used as a prefix to dentistry, constitutes almost a term of reproach, for on this side of the Atlantic it has become, I am sorry to say, synonymous with the veriest chicanery and humbug; but America has not ceased, and I hope will never cease, to produce dentists who are honourable men, and who will cordially agree with the sentiments of a late letter in the *Times*, by a distinguished member of this Association, who says:—"Dentistry, like medicine and surgery, is catholic, and is practised by honest men for the public good, and therefore all its methods are made public to all members of the profession."

A professional man, by the act of adopting a profession and qualifying himself to practise it, waives the right, morally, to keep to himself, for his own profit, any knowledge which would benefit his professional colleagues, and help them to be more useful to their patients. I mean that if the idea of some new operation, or of some improved means of performing an operation, occurs to a man, it is only a matter of duty to make it known to his colleagues as soon as possible after verifying its value. He has become an equal partner in and sharer of the accumulated knowledge of that profession, in consideration for such services as he may be able to render to the profession, and he is in honour bound to give his services, in the form of new and practical ideas, for the good of all. As there are never two operations exactly alike, it follows that every operator must be more or less an inventor, and thus many an idea which is the thought of the moment to facilitate an operation, might be the one thing needful to help a colleague over what appears to be an insuperable difficulty.

We have what we consider to be more than our fair share of charlatanism here, but we cannot be too thankful that we do not find it in our associations and scientific societies. At our annual meetings, at the informal meetings of the branches, and at the regular meetings of the Odontological Societies, we hear no talk of patent rights upon any new idea or method; on the contrary, there is abundant evidence of the strength of true professional feeling, in the eager readiness with which any new thing is presented for examination and discussion. As in the human body, the innu-

merable parts, however infinitesimal their functions, perform them faithfully for the general good, or if one fails to do so from disease, the whole organization suffers until the health of that part is restored, so, our members, actuated by the true spirit of professional life, are ready to give freely their contributions to professional knowledge, while fully conscious that, however much they may give, it is but an atom in comparison with the much they have received.

We often differ in our views of professional politics, and it is only natural that it should be so, for political views are apt to be influenced by local needs and requirements, and it is only by submitting localisms—if they be such—to discussion by the general body that their value can be estimated; therefore it is most desirable that the executive should be truly representative. But we are all united in our appreciation of new scientific truths, and I am sure that our members are never happier than when they have such truths to offer. The ability to do naturally increases with the knowledge of what should be done. The insufficiency of present means to do stimulates the inventive mind, and the means are thought out for the accomplishment of the end. It has been said that "knowledge is power," but we may be very sure that knowledge without the ability to apply it in practice will only make us feel all the more keenly our insignificance. Then, while smarting from the sense of inefficiency, we meet our colleagues and talk over our failures and successes—exchange confidences, in fact—and receive as well as give advice (for this is a commodity which human nature is always more ready to give than to receive), and the discussion suggests some thought of how the ability to apply our theoretical knowledge may be acquired. Thought is something like a small but useful article which requires friction to light it into flame, only thought is not always soonest lighted on its own box. We are always better for association with our fellows. While we meet, as we do here in our professional exchange—while the sense of professional dignity is with us always, the standard of education rising higher year by year—the students in our schools showing a most encouraging spirit of emulation and desire to acquire skill in practice as well as theoretical knowledge, and standing shoulder to shoulder while practical instruction is given—there is little chance for the growth of that selfish egotism which is a dry rot to professional life, destroying by its insidious growth every healthy root, and poisoning the atmosphere with its exhalations.

So long as respect, esteem—we may say brotherhood—can be maintained in our Association and societies, we may take it for granted that we shall have no claims made by our own members for patents; but we must take care that as few such claims as possible are established by those who choose to stand aloof from our Association, and those others whose unprofessional practices render them ineligible for any association, in the broad sense of the word.

And now let me say a few words upon a subject of equally practical interest to ourselves; and I must apologise for having so long delayed a public expression of my admiration for the excellent address which was read to us last year, in London, by my much-esteemed predecessor in this chair. It was the most lucid and satisfactory exposition of the etiology of tooth deterioration that I have ever listened to, and I desire to express my fullest concurrence in every word of it. We are often inclined to seek afar off for what seem to be hidden causes, but which in reality lie beneath our very eyes, and as often, perhaps, we mistake effects for causes, but what we admire in the address of our late President is the thoroughly practical, common-sense way in which the problematical is sifted from the real, showing the simple fact that what is not properly fed cannot thrive. Oliver Wendell Holmes has said, in one of those pithy monologues which seemed to come so readily from the lips of one of his great creations, the "Poet at the Breakfast Table"—"Science is a first-rate piece of furniture for a man's upper chamber, if he has common sense on the ground floor; but, if a man hasn't got plenty of common sense, the more science he has the worse for his patient. . . . It is a good deal as when a painter goes to take the portrait of any sitter who happens to send for him. He has seen just such noses, and just such eyes, and just such mouths, but he never saw exactly such a face before, and his business is with that and no other person's—with the features of the worthy father of a family before him, and not with the portraits he has seen in the galleries or books, or Mr. Copley's grand pictures of the fine old Tories, or the Apollos and Jupiters of Greek sculpture. It is the same thing with the patient. His disease has features of its own; there never was and never will be another case in all respects like it. If a doctor has science without common sense, he treats a fever, but not this man's fever. If he has common sense without science, he treats this man's fever without knowing the general laws which govern

all fevers and all vital movements. The men who have science only begin too far back, and before they have got as far as the case in hand the patient has very likely gone to visit his deceased relations."

Dr. Holmes could not have put the case more neatly. We go too far back in many things, and make our fathers accountable for their children's sins. But if we would correct the faulty structure of the children's teeth, if we would supply them with the proper materials in a form to be properly assimilated for the building up and nourishing of their teeth, we must go back as far as the mothers, or, let us rather say, we must teach the mothers of the coming generations how it must be done. The feeding must begin before the child is born, and it must continue with watchfulness and discriminating judgment through infancy, childhood, and adolescence.

That this should be intelligently and effectively done, it is necessary that every dentist should be a teacher, and endeavour, as far as possible, to disseminate information on all possible occasions. We are doubtless all of us aware (certainly those who have had much experience are) that attempting to teach men and women to do or leave undone such things as may give trouble, or interfere to some extent with their comforts or their pleasures, will be a thankless task in most cases; but when we sow good seed broadcast, some of it will fall on good ground. There are many mothers who are so sincerely anxious for their children's good that they will listen to teaching about *present* care for the *future* good of their teeth, and will try to act upon the instruction which is given them, if they believe in the teacher, even when it does not in all respects conform with what was taught by their grandmothers.

It is to those who wish to learn, that we must look with some degree of hopefulness for a beginning of improvement in the structure and preservation of children's teeth, always remembering that in preserving these we are taking care of the adult teeth. Our work is to advise, to prevent, to repair, to restore. Immediate results are not what we should chiefly look for. The future effect of what we do in the mouth should be the idea ever foremost in our minds. The time has gone by when we can be content to act upon the theory that, because a baby has twenty teeth which will in time be replaced by others, it matters little whether they are removed in the fourth year or the tenth year. Children need masticators as much as adults need them, more perhaps, because grow-

ing tissues need feeding more than wasting tissues, and therefore the usefulness of the temporary teeth should be as carefully preserved as that of their permanent successors; but we must remember that tender things should be treated tenderly; we cannot do the same kind of work upon the teeth of a child of four years that we can upon those of an adult of forty. Nature points out unmistakably the time when the milk teeth have done their appointed work; it is one of our duties to assist in keeping them fit to do it.

Extraction simply to relieve pain is absolutely unnecessary, and if we accept the theory that feeding is essential to the proper development of the permanent teeth—a theory which I think no one can question—it becomes difficult to justify the old, and still too common practice, of removing the deciduous grinding teeth on the first indication of pain. Prevention is generally possible, but if in spite of our efforts in this direction pain arises in those teeth, it is easily relieved, and a defective masticator is much better than none at all for the important work those teeth have to do in the preparation of food to nourish all parts of the developing frame.

But the care of the dentist cannot be relaxed in the least when the deciduous teeth have all been replaced by their permanent successors. We know, unfortunately too well, how rapidly the permanent teeth may break down between the ages of twelve and sixteen; how difficult it is in many cases to do more than merely check the progress of destruction until the period of constitutional change is past, when our work becomes more hopeful. I stand here to-day in the most responsible position in which you can place me, and because of this—because what I say here will have more emphasis than it could have from any other place in the gift of the profession—because I have been asked by students whether after all the adverse arguments by some of my American colleagues, I still adhere to my doctrine of prevention by space—I want to repeat from this chair the advice I have so often given to young practitioners when they meet with cases of rapid approximal decay in the permanent incisors and bicuspid, at or before the twelfth year, and especially when the family history indicates delicate teeth. It is this—do not have the slightest hesitation in recommending the extraction of the six-year molars as soon as the twelve-year molars are sufficiently advanced to be in occlusion, the object being to give space for distinct separations between all

the anterior teeth. I must not detain you here with explicit instructions about this operation; text books will give you these, and point out when and how exceptions should be made. You will see in the museum arranged in connection with this meeting of the Association sufficient evidences of the beneficial results which may be expected to follow the operation if it is performed at the proper time. I am aware how serious a matter it appears to a young practitioner to take the responsibility of recommending this operation, but as professional men we are obliged to take responsibility. It is our duty to tell our patients what our judgment convinces us is best for the future of the teeth; and, within reasonable limits, to insist upon having our advice acted upon. A professional man does not inspire confidence if he shows himself weak enough to yield too much to the uninstructed fears and suggestions of his patients.

Dental Museums, and What They Might Be.*

BY W. BOOTH PEARSALL, F.R.C.S.I.

I HAVE to thank you, Mr. President and members of the Western Counties Branch, for your kind invitation to attend your meeting, and take part in your proceedings. When your President, Mr. Gartrell, was selected to be your president-elect, he was good enough to express a wish that I should prepare a paper for this meeting, and in obedience to that mandate I am before you to-day. I fear I have not chosen a very popular subject with which to claim your attention for a short time, although the subject is one to which, despite its great importance, we have not given any serious attention; yet it is also one by which much valuable practical knowledge can be gained by those who are students of their profession, not mere traders in the practice of it.

"Our Dental Museums and what They might be," covers a wide range of thought; I shall, however, confine myself to the discussion of a few of the more important heads of the subject, with a view of occupying the time profitably you have so generously placed at my disposal, and also of enlisting your active help and sympathy in any serious efforts that may be made to overcome the apathy and indifference that have for so many years retarded the development of our knowledge in directions, the importance of which can hardly at present be estimated. There are many

* Read at the Annual Meeting of the Western Counties Branch, held at Penzance, July 29.

branches of daily practice on which our knowledge is by no means accurate, whether we hear it as expressed in opinions formed on the "wear and tear of experience" at our dental meetings, or in the pages of the current dental journals, which would bear much deliberate investigation by thoughtful members of our profession. There is no better way of recording the high-water mark of our knowledge than the deliberate formation of a collection of specimens and casts relating to the various subjects we have to deal with in our daily practice, properly ordered and arranged in a museum.

Dental museums can be formed in many ways, according to the nature of the subject or subjects to be illustrated, and the temporary or permanent character with which we may endow them. Temporary museums have been, I am sorry to say, rather rare so far as the meetings of our Association are concerned, and I would advocate that a much more earnest spirit should be shown generally, with respect to this subject at each annual meeting. As some of you are aware, I was the first member of the Association to attempt to form a collection of abnormal teeth worthy of our claims to be considered scientific men, by bringing together (despite much discouragement at head quarters) the museum of the Dublin meeting of the British Dental Association in 1888. Nearly 900 specimens of abnormal teeth, specially selected, were shown to the members present in a convenient and original way, and other specimens, casts, photographs and tools brought the collection up to 1685 exhibits, filling an octavo catalogue of seventy-two pages. Since 1888, no serious attempt has been made by our Association to repeat the results to be gained by the study of such a collection of material arranged so as to be easily examined. I am of opinion that a standing Museum Committee should be formed from those members of the British Dental Association who have the necessary knowledge, and are willing to aid in this most useful work year after year; the members elected to serve on it for a definite period of time, and to be at liberty to publish printed reports at the expense of the British Dental Association, in its journal, on subjects capable of collective investigation, fully supplemented with diagrams and illustrations of the specimens on which the report was founded. Many branches of our work would receive impetus if some effort was made to record the high-water mark of our knowledge each year, for no student of our profession will admit that the text books afford more than a summary of facts relating

to the subjects discussed. To illustrate my meaning, I may point out that no one has yet published illustrations containing the mean variations of the roots of all the teeth, whether they be curved or oblique; yet such an investigation would be invaluable to us, not only from an operative point of view, but also with respect to many procedures intended to restore the use of the teeth as masticatory or oral organs. No one has yet attempted to classify the irregularities of the teeth, whether we look on them from a scientific or mechanical standpoint, and I fear many have been led astray by some of the recent books on this most interesting subject, by authors who have collected thousands of models of living mouths, but no *anatomical* examples of what are really types of the different classes of these deformities by which we could correct our preconceived ideas on the relations and rate of growth of the teeth and their appendages. Much valuable work can be carried out in various directions by the organisation of even temporary museums at our annual meetings, if we can secure the services of a few earnest men who are interested in suitable subjects, by the collection and arrangement of available material, from the study of which accurate conclusions can be drawn instead of the fictions too prevalent in the books, and particularly in their illustrations. I am convinced that a committee consisting of six or twelve competent men, steadily working for five years on the annual museum, would do more to advance our progress in scientific and accurate knowledge, than centuries of after-dinner oratory by men who claim to be scientific, but who nevertheless never contribute from one year's end to the other anything to our knowledge or our progress. The Association possesses a journal, and in its pages well-planned reports, such as I have suggested, might with great advantage to us all take the place of the post-prandial oratory most of us are tired of. Having served a thorough apprenticeship to museum work in the past, I may venture to say with some weight of practical experience, that *one* temporary museum in the course of the year, to be held at the Annual Meeting, is as much as our profession is likely to carry out with any hope of success in the United Kingdom. In order to make it successful the preliminary notices and circulars should be drafted with precision, and diagrams, or other means of illustrations should be used so as to emphasise the nature of the casts and specimens wanted. Museums of a permanent character must now come under our attention, and we are met at the outset by the difference of opinion that prevails

amongst many men who are interested in museums of a permanent character, as to the kind of specimens that should find a place in such a collection. Some advocate that *everything* illustrating the sections or classes the museum must of necessity be divided into, for convenience of cataloguing and also of reference, should be included. Others, on the contrary, would not preserve any specimens that are not extremely rare, so that the whole character of a museum, its value as a place of reference, its capacity for supplying information, is altogether dependent on the general scope and character of the specimens with which it is equipped. Rarities in themselves do not always afford as much information as specimens of a more normal type; but rarities, supplemented and contrasted with the normal and the variations from the normal condition, often illustrate facts sometimes overlooked when mere rarities are kept in a class by themselves. Without going farther into the minutiae of the views that prevail as to the restriction or wideness of scope of the character of museums of a permanent character, I may point out that permanent museums may be divided into two classes: first, those intended for the useful and important work of teaching in our dental schools; second, those intended to illustrate in the fullest way the growth of modern dentistry from the time of John Hunter and Robert Blake to the present day. Museums designed to aid in practical teaching in dental schools should be equipped with a series of specimens and casts of a typical or representative character, but up to the present they are conspicuous by their absence from all our dental schools.

This may seem a strong statement on my part, but I have failed to see anything worthy the name of a museum in any of our dental schools I have been able to visit during the past five years. There is not in the kingdom a museum in any dental school, where a student can see specimens or casts duly classified and arranged in such order that he can compare them with the views laid down in the leading text books.

School museums, in my opinion, should contain a definite collection of specimens, illustrating the various positions in which cavities of decay are commonly seen in the mouth; and the teaching of these specimens should be further supplemented by similar specimens, showing by means of sawn sections, or by carving away the tissues intercepting our view, the relations of the parts we wish to explain. This subject you may say is part of the dental anatomy course; well, so it is, but students would gain in

precision of knowledge if a proper series of specimens were prepared and arranged for ready reference in dental schools, on all matters relating to practical dental anatomy. A collection of teeth showing causes of failure of the different classes of fillings—whether the causes be defective manipulation or chemical incompatibility—would teach practitioners as well as students a good many facts not touched upon in the text books. To my mind, no better plan could be adopted for a school museum, than to collect and arrange such specimens and casts as would fully illustrate such a text book as 'Tomes' "System of Dental Surgery," as has been happily suggested by Dr. R. T. Stack. A museum arranged on such a plan would not take up much space, and rare specimens could be represented by casts or models. It would seem to me desirable that some effort should be made, by the teaching staffs of the dental schools all over the kingdom, by which specimens, models, photographs and other good teaching equipments could be exchanged, as a little co-operation in this way would enable every school, no matter how small, to acquire a practical museum without much trouble or expense. Having done some practical work in this direction myself, I am in a position to know thoroughly the troubles as well as the pleasures of forming a collection of this kind; and I will hand round a few specimens I mounted and prepared during the past winter, that illustrate matters of practical interest difficult, if not impossible, to describe on paper. Yet by means of well-chosen specimens and preparations, all such matters become impressively graphic. It is not given to everyone to be a master of verbal illustration in explaining abstruse scientific facts, such as my friend Sir Robert Ball has ever shown himself to be—not only in his delightful lectures to children, but also in his popular books on astronomy.

Nevertheless, I think more attention should be given to the development of dental knowledge in this direction, by those who are able to do this work, despite the sneers and resistance of those who ought to be the first to encourage and appreciate it. It is sufficient for me to point out, that whether permanent museums are intended for teaching students or not, that there is an unworked field of ascertainable facts to be won in this direction, of facts that are of absolute daily use to us all, whether we be of the Saul-like head and shoulders order of growth we are so constantly reminded about in the leading articles in the British Dental Association Journal; or only hard working-earnest practitioners,

such as I see around me to-day, in whose ranks I am proud to feel I am a comrade.

Having said so much on behalf of practical school museums as invaluable aids in teaching those who are to come after us, we must now turn our attention to the ideas that ought to guide us in forming a permanent museum—likely to advance our knowledge, and to be of use to us in our daily work. In the first place, we should aim at collecting, and displaying in the fullest way, all specimens and casts that can illustrate the many branches of knowledge that go to form our speciality; specimens that may be rare to one man may be quite familiar to another. By grouping together, in order, the specimens and casts collected by different observant practitioners, we can more readily arrive at comprehensive knowledge of the subject, than if we had endeavoured to acquire this knowledge by our own experience and opportunities. Although we may not be able to acquire individually such a bountiful harvest of specimens of scientific interest as others, nevertheless we ought to endeavour to place all such specimens, whether acquired by chance, good fortune, or keen diagnostic observation, in some permanent place where they would be of more use than lost for years in dusty drawers, or boxes, of no use to their possessor or to our profession. To my mind fulness of detail should be the leading idea of a permanent museum, wearisome as it may prove to many minds. If this fulness of detail is carried into all the sections of the museum, by the united efforts of a number of observers, so much the better for the museum, and for the progress of our knowledge. If the growth of the museum depends on the activity and well-directed intelligence of one man, it will none the less be worthy of study as a collection, although some subjects may be more fully illustrated than others. Such was the museum formed by John Hunter, on which he spent much labour, much money, and much of his active working life, and we are able by this collection alone to appreciate how great a man he was, and how thoroughly he endeavoured to learn the whole truth about every branch of his profession. Let us see how a dental museum, formed by a more recent collector, is appreciated in London at the present day. Sir John Tomes, when writing his lectures on dental surgery, and his more extended text book, collected many specimens by which to illustrate his views and conclusions, and engravings were made from the specimens, by artists under his direction. A collection of specimens formed

for such a purpose by *anyone* would not only be of value, but worthy of being kept intact, as the material on which were based certain observations and deductions. A collection made by one of the few dental authors whose writings are known to educated dentists all over the world, would be of greater interest—a collection many of us would like to see and study, with Tomes' "System of Dental Surgery" in our hands, and thus more fully enter into the relations of the different specimens to their classes, or to each other. Last year, when I was preparing my paper on "Oblique Rooted Teeth," I was struck with an illustration on page 123 in the third edition of Tomes, as resembling one of the changes in form of the 6th- and 12th-year upper molars I was collecting. Enquiry was made for the tooth from which the drawing was made, in order that I might be able to examine it from every side. No trace of the tooth could be discovered, and yet this splendid collection, made by a most observant and original-minded member of our profession, has been lost in the chaos from which the museum of the Odontological Society of Great Britain has never emerged since it was formed. I have been informed that some promise or understanding was made at the time the collection was given to the Society by Sir John Tomes that all the specimens were to be marked, so as to be readily inspected by any member who was interested in them. Whether that arrangement ever was carried out I know not; I can say, however, that you will find it difficult, if not impossible, to see the Tomes' collection. This is not the place, nor am I the proper person to criticise the blue-ribbon Dental Society of the world; but in common with many educated dentists, I feel that some of the hoarded wealth of the Odontological Society of Great Britain might be well spent in bringing together and exhibiting in convenient and accessible glass cases, the collection made by Sir John Tomes for the benefit of his profession. Students and practitioners could then see and understand for themselves many matters it is difficult to explain by words, whether the readers be educated or uneducated, and probably the work done by Sir John Tomes in the past would be more highly appreciated by the numbers of men who have gone through the curriculum of dental study, during the past fifteen years, to say nothing of the many intelligent members of our profession, who, without such advantages, had to educate themselves. I may perhaps express a hope that this oversight on the part of the Odontological Society of Great Britain will be set right before

long. The arrangement and display of such a collection, in a modern and accessible way, would attract visitors not only from all parts of the kingdom, but from foreign countries. The custody of a collection of such interest to our profession becomes a responsible trust I hope yet to see properly discharged. The Society could not devote itself to better work than the ordering and display of its museum, for the specimens have been placed there, for the advancement of dental science, by intelligent and observant members of our profession. The collection of specimens made by the late Robert Nasmyth of Edinburgh has met with a more happy fate than that which has befallen the Tomes collection. Left to the Royal College of Surgeons in Edinburgh, it has at least been kept together, if the specimens cannot be said to be *displayed* according to our more modern ideas of museum arrangement. The specimens are in the order they were arranged by Professor Goodsir many years ago, but are, like the Tomes collection, almost unknown to the dental profession.

The late Wrigley Grimshaw, F.R.C.S.I., of Dublin, left a large collection of specimens to the Royal College of Surgeons in Ireland, which were mounted and arranged by my friend, the late Dr. John Barker, curator of the museum. Some of the specimens of the Grimshaw collection were shown at the British Dental Association, Dublin meeting, in 1888. These specimens need to be catalogued as well as arranged by a *dentist*, so as to be of use to those who may wish to inspect or study them. I must now only touch on a very practical part of my subject, namely, the ordering and display of specimens and casts intended to form a permanent dental museum. Much remains to be done in this direction, as there is a great want of precision in the methods of exhibition commonly seen in museums, and many of the methods are quite useless when applied to our specimens. To begin with the glass cases. Most glass cases are of the monumental book-case type, with deep shelves from nine to eighteen inches deep; the wood-work of the doors covers and overshadows much of the available space, the shelving and the panels of glass are designed on independent lines, without any thought as to the nature of the specimens to be shown. The doors are rarely dust-proof—an important matter in a permanent museum, which is almost invariably found in a town—so that the contents have to be dusted from time to time, to the destruction of many delicate objects. Deep glass cases have a further disadvantage in that it is difficult to see into

them, and small objects do not show distinctly from the reduction in the supply of light, and casts arranged in rows placed on the shelves one behind the other do not show their characteristic aspects. In some museums, specimens of abnormal teeth are fixed to cards, *i.e.*, thin pieces of smooth board pasted over with paper, commonly of a crude blue or green colour, distressing to look at, or white paper, in which latter case the dust makes its presence conspicuous by soiling the paper as well as the specimens. Abnormal teeth should be shown in such a way that the specimens could be examined from any aspect. Attaching specimens to a card by brass screws may be a secure method of fastening teeth, but it has the objection that one surface at least of the object must be permanently hidden. For the museum of the Dublin meeting in 1888, I invented a method of exhibiting specimens of abnormal teeth which permits liberty of examination without damage to the specimen, as well as great latitude or precision of arrangement, so that specimens can be shown in groups or in sequence so far as they are related to one another by family resemblance, and upper and lower teeth can be seen in their natural position. This method has not been supplemented by any other, but has been adopted by the members of the profession who collect specimens and wish to exhibit them. By the method carried out in 1888 and continued ever since, a small hole is drilled in a convenient place in the specimen intended to be mounted, and a piece of tinned steel wire about two inches long, such as is used in making wire woven mattresses, is cemented into the specimen by the aid of sticking wax or any other cement that may prove convenient, the glass tube is uncorked, and the wire and specimen dropped in to make sure the specimen will not prove too big for the tube. The free end of the wire is cut to a point and pushed through the cork, bent over by pliers and forced into the cork again, so as to bring the specimen into the correct position. The cork is then guided into the mouth of the tube, so that the exposed surface can be secured with wax to exclude dust. When many specimens are to be mounted, it is most expeditious to begin by cutting the corks and clearing the tubes of all dust. Soft paper is the best method for cleaning the glass, using it dry; if moisture is used the tube is difficult to clean quickly; by the dry method of cleaning three or four tubes can be cleaned in the time taken by one by the moist method. The wire is also kept ready cut in lengths, so that with a little practice specimens can be mounted without any loss of time.

I should not forget to mention that to the bottom of the tube a small circular label of white paper is fixed, on which can be written the name of the donor of the specimen, or the class to which the specimen belongs, or any brief note that may be wished. These circular labels are quickly made by selecting a suitable punch for making gun wads, and by folding gummed paper several times, a couple of dozen or more can be cut out by a blow at a time on a cake of lead, ready to be pasted to the end of the tubes. Mahogany frames are used in which to place the specimens mounted in tubes, so that they can be rotated from side to side—moved round in fact—without the specimen being touched by the fingers. The rack adopted for use will hold twelve tubes in a row, with sufficient space between each to permit the tube to be grasped with the fingers and turned round, and each rack holds four rows of tubes, or forty-eight tubes in all. These mahogany racks filled with mounted specimens can be placed on a sloping surface for temporary exhibition, or they can be placed in shallow glass cases on a wall, one rack over another, so that a row of four racks can be placed in such a position to allow of easy examination to folk of ordinary height. Lower specimens can be conveniently seen while one is seated on a chair, and the upper specimens can be closely examined standing on a chair if one is below the middle height. With these objects in view, of convenience of reference and classification, accessibility to examination, without stooping over the usual table glass cases, or going on tip toes to see into tall wall cases, I have designed a type of glass case for our museum in Dublin which is about to take permanent form. The glass cases are shallow, so as to have abundance of light by having the objects contained in them as close to the glass as possible, and the panes of glass are so arranged as to be somewhat larger than the mahogany racks, while at the same time the wood work of the sashes do not overshadow or overlap the racks or the specimens. The racks for the specimens are kept to the front of the cases, supported by buttons against light shelves which permit models to be placed upon them behind the racks if necessary. If we wish to combine the casts with specimens of teeth, we can do so by taking the tubes out of the racks, and placing models in place of them on the corresponding shelf; or we can remove the mahogany rack and fill the vacant area with plaster casts, or with other preparations of small size that need larger bottles or tubes than the one I have used as the standard size. The light shelves will slide

forward to the front of the case where it is intended to fill them with models, or they can be pushed back when a mahogany rack is intended to be placed in the area.

This descriptive detail brings me to speak of plaster models, and I have come to the conclusion that for museum work most plaster models are too big, *i.e.*, there is a redundancy of plaster in situations that do not make the models stronger, or more useful, than if a uniform plan or method of display is adopted. I have made a good many experiments with plaster models, and I have come to the conclusion that with a good many specimens the most advantageous method of display is to treat upper and lower casts so as to be seen in plan, so—not only is this useful for convenience of reference in many cases, but much space is gained by trimming away all needless plaster at the sides of the models, while at the same time a firm base is made, by which to stand the model on the shelf. In models taken in series during the progress of a regulating case, much information can be gleaned as we compare one model or cast with another, and I will be most grateful to any of my present audience if they will add to the collection of casts in Dublin by sending examples of irregular teeth whether they have been treated or not—if in the former case the gift will be even more valuable. With respect to the articulation of casts showing irregular teeth, Mr. Campion's method seems to me an admirable one, as it is not only quite simple, holds the casts in their correct position—so far as plaster casts can be made to resemble the mouth of a patient—but they can also be quickly disarticulated by withdrawing a wire. Mr. Campion's invention is admirably suited for museum work, as it is the least bulky form of articulating models with which I am acquainted, and directly leads to one important result—economy of space.

Contour models, like those shown you, are also of great value for illustrating irregularities of position and form in the front teeth, particularly in cases of protrusion.

Then as an accurate record during the treatment of protruding teeth, contour casts not only reprove querulous and impatient parents, by their frank record of facts, but are even more useful to the practitioner himself if he does not seek self-deception as to the actual movement of the teeth. Davenport's method of showing the internal articulation of the teeth is also useful for museum work in several interesting directions. Applied to practice during the treatment of cases, it teaches invaluable lessons to the dentist

who will go to the trouble to master them. Plaster models should be coloured in a diagrammatic way—at least those illustrating irregularities in position of the teeth. Attempts to make plaster casts look like nature are rarely successful, and in the few successful cases I have seen, cost great trouble to do. It would be a very great advance indeed, if all the dentists who take an interest in museum work exchanged views as to methods of classification to be pursued for mounting and displaying specimens, and arrive at some uniformity of result. Within a few days of this meeting we shall have the pleasure of examining the second loan museum carried out by the British Dental Association. Mr. G. G. Campion has not only a thorough knowledge of the whole subject, but he has what is more important—the capacity to learn, whatever lessons the specimens sent in to him for classification and arrangement may teach. This is a better attitude of mind, so far as the progress of the scientific purposes of our profession are concerned, than that shown when the 1888 museum was organised, and most of the specimens were prepared with my own hands. At that time I was curtly told by one of our London brethren, “that he did not take any interest in dental curiosities,” when I reminded him that he had not contributed anything to the museum. I wonder what he will think of the Manchester museum, its order and thoroughness when contrasted with the condition of “the finest collection of dental specimens in the world.”

A museum catalogue ought to be a correct and full one, so arranged that growth is provided for, as well as fulness of detail in description and facility of reference. Thanks to the typewriter, useful notes can be recorded in compact form, and the name of the donor of the specimen, the place it came from, can be entered in a position where it is certain to be seen. By cataloguing all specimens in regular order as they go into the museum, and re-cataloguing the groups they belong to with full particulars of each class, much valuable information could be placed at the service of those who delight in specimens, too often misleading from the hateful habit of procrastination or the carelessness of the museum committee or the curator.

I fear I have wearied you all in placing before you one of my professional hobbies, but you must make allowances for a determined and enthusiastic nature. I have long wished to see what I may truly describe as an ideal dental museum, and I hope, if

hard work and rigorous sticking at such a labour will accomplish such a result, it will be seen when next the British Dental Association cross the sea—to return to Dublin. We have sent to Manchester over 500 specimens, many of which have never been seen by the profession, and I hope during the winter that the material we have already collected will be placed in good order in the dust-tight cases I have tried to describe to you. Should any of my hearers feel disposed to contribute to our sum of knowledge in the Emerald Isle in the way of specimens or casts, I can assure them of a grateful welcome for their gifts and due acknowledgment on the shelves in the cases and in the pages of our catalogue. I thank you, Mr. President and gentlemen, for your patient forbearance to me; I hope I have done something to rescue a most interesting and expansive subject from the fate of barrenness and lack of interest too commonly associated with our treatment of our dental museums *as they are*.

MICROSCOPICAL AND LABORATORY GOSSIP.

For the retention of lower dentures in flat mouths, Dr. Swigert recommends the following plan: Take the impression as deep as possible on inside of jaw, each side of mouth at "heel" of impression. To better do this, build down the inner side of posterior part of cup with wax, *as far as case will allow*, from half inch to an inch, which will press tongue and soft tissues out of way of impression. If plate is now made as attachment of tissues will allow at this point, it will stay in place much better than when of usual depth. The general direction of this extra depth of plate will be outward from median line as well as downward in a great many mouths, so the plate will have to be sprung into position, which is all the better.—*Ohio Journal*.

For making broaches or root fillers from pianoforte wire, Dr. Beacocks suggests that two round-edged corundum wheels should be taken and screwed on to the lathe or engine mandrel, the wire being held in the groove between them, and during the grinding kept constantly turned to ensure an even surface.

The following method of cutting glass with chemicals is interesting. With an alcoholic solution of hydrarg. perchlor. draw a line across the glass at the part where it is required to divide it; allow this to dry, and then over the same line draw a quill dipped in nitric acid, and the glass will then easily part at the line thus drawn.

AMONGST recent inventions may be noted an antislulphuric acid enamel, now largely used in many electrical works. For coating wood-work, iron and copper in the neighbourhood of batteries it seems to have proved thoroughly successful, and is found to resist even strong sulphuric acid for weeks. It is applied like varnish, and is supplied in black or other colours.

ANNOTATIONS.

NEXT YEAR'S ANNUAL MEETING.—From the proceedings of the Annual Meeting which has been recently held, it will be noticed that by a nearly general desire of the members, the date of our next gathering is to be changed from the summer to the spring vacation. It will also be seen that Birmingham has been selected as the place, and Mr. Breward Neale as the President. The date, though not definitely fixed, will probably be towards the end of April, the meeting being held at Mason's College.

A NEW DENTAL JOURNAL.—We have recently received the first number of *La Revue Internationale d'Odontologie*, a new journal, published under the direction of M. Paul Dubois, with the assistance of eight other professors in the Paris Dental School. The founders of the new journal have made arrangements to secure its financial existence for several years, but the first number gives good promise that its professional and literary success will be also assured. It is intended to be an independent journal, outside personal questions, and not subject to change by the vote of a majority. The copy received contains an excellent illustrated account of the demonstrations recently given by Dr. Herbst at Paris, besides several articles and other matter interesting to dentists.

A NEW TOOTH SOAP.—The cleansing of the teeth is admitted on all sides as one of the great preventives of tooth decay, and taking into consideration the results of recent investigation upon caries, it seems evident that this cleansing should be carried out with suitable disinfectants. Dr. Miller recommends a mixture of benzoic acid and saccharine as yielding the most rapid results in the sterilisation of mouth bacteria. We have recently received from Messrs. Cook, of London, a tooth soap in which this combination is effected. The soap is pleasant to the mouth, has good cleansing properties, but would be better if it contained a little more soapy material. The formula is as follows :—

Sapo albus puriss. ...	...	...	60 parts
Tinct. kramerizæ ...	...	...	20 „
Calc. carb. precip. opt. ...	...	...	22 „
Acid benzoic ...	...	...	3 „
Potass. chlor. ...	...	...	5 „
Sodæ bor. ...	...	...	5 „
Saccharine ...	...	...	1 „
Ol. cin. ...	...	...	.1 „
Ol. menth. pip. ...	...	...	.025 „

Perfumed with otto of rose, &c.

APPOINTMENTS.

W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S., to be Assistant Dental Surgeon to the Dental Hospital of London.

F. E. HUXLEY, L.D.S., M.R.C.S., to be Lecturer in Dental Surgery at Mason's College, Birmingham.

A. E. DONAGAN, L.D.S., B.A., Cantab., to be Dental Surgeon to the Royal Institution for Deaf and Dumb Children, Birmingham.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
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Nitrous Oxide and Oxygen.

IN the June number of the *Transactions of the Odontological Society* a paper on "Nitrous Oxide and Oxygen as an Anæsthetic," appears from the pen of Dr. F. Hewitt, and at the recent Annual Meeting the same author also communicated one upon an apparatus for administering the mixed gases. Both these papers are well worthy of the careful consideration of all dental practitioners, the first in particular, as it contains an account of the author's long and patient investigation into the action of the mixture.

Nitrous oxide, as is well known, though satisfying as a rule the wants of dental practice, is nevertheless not without certain drawbacks, and of these the principal, from the surgeon's point of view, is certainly the "jactitation," which often is an annoying impediment to the operation, delaying the necessary rapidity, and frustrating the sureness of one's procedure. "Stertor" and "cyanosis" are also symptoms with whose presence during an operation we should be glad

to dispense, while the swelling of the tongue and mucous membrane of the mouth is also in many cases an additional disadvantage.

As an anæsthetic, then, nitrous oxide is frequently of not altogether satisfactory behaviour, and it is with the idea of securing a perfectly tranquil condition of anæsthesia that it has been proposed to mix oxygen with the nitrous oxide gas.

The credit of commencing these investigations must be given to Paul Bert, but he was only able to attain to anything like good results by working with an increase of the ordinary atmospheric pressure in a specially constructed chamber—a disadvantage that debars his method from the regions of everyday practicability. Dr. Hewitt, it appears, has successfully overcome the difficulty of working at ordinary pressures by his ingenious apparatus.

In the first paper referred to, an account is given of 803 administrations carried out by this author, and in these it is most interesting to watch the progress towards efficiency of the machine with which the mixture is now given.

About 10 per cent. of oxygen seems to be the proportion which, mixed with the nitrous oxide gas, acts best in most cases, but Dr. Hewitt has now reached beyond the point of a fixed mixture, and gives us an apparatus with which we can administer any percentage of oxygen (speaking approximately) at a moment's notice.

It is difficult, and it is yet too soon to come to a definite opinion as to the merits and faults of the mixture, but that it will prove a very valuable adjunct to our present selection of anæsthetics is undoubted.

To briefly summarise the case as far as our present knowledge goes we would say that in children, in patients advanced in age or suffering from serious visceral disease, in anæmic, and in weakly people this mixture seems to be distinctly indicated.

The points in its favour are the absence of jactitation, of irregular noisy stertor (although soft snoring stertor is often present), of cyanosis, and of swelling of the mucous membrane, and the slightly longer anæsthesia that can be obtained.

Against these very distinct gains we have to set off a few disadvantages. The period of inhalation to obtain the anæsthesia is longer—often twice as long—as with nitrous oxide gas alone, and there is obviously a correspondingly greater amount of the gas used. It requires undoubtedly more skill, care and practice for its successful administration. The amount of oxygen required in a given case can only be known after considerable knowledge of cases. The point at which to cease in administration is also somewhat doubtful, and dependent upon the experience gained from former cases. But one of the most serious drawbacks to our mind is the fact that sickness is more likely to occur after this mixture than after nitrous oxide gas alone. The cause of this we refer entirely to the longer time of the inhalation, but if we are certain that no food has been taken for three or four hours before the administration, we may safely disregard this objection to the use of the mixture.

It is conceivable that it might be advanced against the mixture that nitrous oxide having satisfied our wants for so long, nothing further is needed. To arguments of this nature we are not disposed to pay much attention. It is not scientific to cling to an old idea for mere sentiment.

We have endeavoured to balance the advantages and disadvantages of this new combination of gases as an anæsthetic, and however desirable it may be in certain cases, the fact that it demands the presence of an expert in its application will, we anticipate, prevent its more general use.

Much of what we at present know of the subject is due to the exertion of Dr. Hewitt, and he is certainly entitled to our hearty acknowledgment, and we only hope with him that others will give this plan of producing anæsthesia an extensive trial, and thus throw fresh light upon the subject.

ASSOCIATION INTELLIGENCE.

The Annual General Meeting, 1892.

THE Annual General Meeting, which was held in Manchester on August 11th, 12th and 13th, of which we gave an epitome in our last issue, was attended by the following members:—

Ackery, J., London.
 Alexander, M., Liverpool.
 Amoores, John S., Edinburgh.
 Andrew, John J., Belfast.
 Apperley, E., Stroud.

Bacon, W. B., Tunbridge Wells.
 Balcomb, T., Jersey.
 Baldwin, Harry, London.
 Ball, A. E., Bournemouth.
 Bennett, Storer, London.
 Biggs, J. A., Glasgow.
 Blandy, Henry, Nottingham.
 Booth, R. B., Crewe.
 Bradbury, E. A., Huddersfield.
 Briault, E. H. L., London.
 Broughton, George, Manchester.
 Broughton, W., Manchester.
 Brown, Ed., Barnstaple.
 Browne-Mason, C., Scarborough.
 Brownlie, J. R., Glasgow.
 Brunton, G., Leeds.
 Buckley, T., Oldham.
 Burrows, W. B., Blackburn.
 Butcher, J. O., London.

Cameron, D. R., Glasgow.
 Campbell, W. G., Dundee.
 Campion, G. G., Manchester.
 Campion, H., Manchester.
 Canton, F., London.
 Carter, H. C., London.
 Cocker, Arthur, Halifax.

Cocker, Alf., Yorks.
 Coffin, W. H., London.
 Collett, E. P., Manchester.
 Colwill, F. H., Ilfracombe.
 Colyer, J. F., London.
 Cooper, C. H., Bradford.
 Corbett, D., jun., Dublin.
 Cornelius, W. F., Teignmouth.
 Cowper, E., Darlington.
 Coxon, S. A. T., Wisbech.
 Coysh, T. A., Liverpool.
 Cromar, John, Aberdeen.
 Craig, J. Thos., Leicester.
 Cumine, R. H., Forest Gate.
 Cumming, James, Glasgow.
 Cumming, Peter, Falkirk, N.B.
 Cunningham, George, Cambridge.
 Cutts, John, Lancaster.

Dale, F., Sheffield.
 Dent, J. W., Stockton-on-Tees.
 Dilcock, T., Liverpool.
 Dolamore, W. H., London.
 Donagan, A. E., Birmingham.
 Dougan, William, Manchester.
 Drabble, R. C. H., Sheffield.
 Dreschfield, L., Manchester.
 Dunkerley, J. W., Manchester.
 Dykes, Thomas, Dunsfries, N.B.
 Dykes, William, Cheshire.

Eden, D. R., Australia.

Edwards, Richard, Liverpool.
 Egan, L. J., Cork.
 Elliott, W. T., Birmingham.
 Elmitt, S. F., Newcastle-under-Lyme.
 Elwood, W. H., Belfast.

Fisher, W. M., Dundee.
 Fothergill, J. A., Darlington.

Gaskell, W. F., Liverpool.
 Gay, E. R., Merthyr.
 Gill, Harry Beadnell, Norwood.
 Glaisby, Walter, York.
 Grove, H. N., Walsall.

Harding, W. E., Shrewsbury.
 Harrison, Frank, Sheffield.
 Harrison, Walter, Brighton.
 Headridge, David, Manchester.
 Headridge, Peter, Manchester.
 Headridge, Thomas, Leeds.
 Headridge, William, Manchester.

Helyar, W., Clifton.
 Henry, G., Hastings.
 Hepburn, David, London.
 Hepburn, D. S., Nottingham.
 Hern, G., London.
 Holden, H. J., Exeter.
 Holt, George, Bury.
 Hooton, W. A., Manchester.
 Houghton, Edwin, Manchester.
 Howarth, Ambrose, Bradford.
 Hughes, Morgan, East Croydon.
 Hutchinson, S. J., London.

Jameson, J. T., Newcastle-on-Tyne.
 Johnson, M., Chester.
 Jones, John Henry, Sale.

Kelly, W., Manchester.
 Kerr, E. S., Mentone.
 King, Roff, Shrewsbury.
 King, T. E., York.
 Kirby, Amos, Bedford.
 Kloet, R., Manchester.
 Knowles, A. E., Stockton-on-Tees.

Ladyman, William, Liverpool.
 Lee, Josiah, Bradford.
 Lennox, R. P., Cambridge.

Large, C. W., London.
 Linnell, P. A., Manchester.
 Lodge, George H., Rotherham.
 Lucas, G. J., London.

MacGregor, M., Edinburgh.
 Macleod, W. B., Edinburgh.
 Maden, W. H., Rawtenstall.
 Mansell, Thomas, Birkenhead.
 Mantou, J. N., Wakefield.
 Mason, W. J., Carlisle.
 Masters, F. W., Manchester.
 Matheson, L., London.
 Matthews, A. A., Yorks.
 Matthews, William, Broad Green, Liverpool.

Maurice, A., Chester.
 McAdam, G. C., Hereford.
 McCash, James M., Glasgow.
 Mechan, A. R., Dundee.
 Morrey, Thos. H., Ashton-under-Lyne.

Milnes, J. H., Huddersfield.
 Minshall, F. W., Salford.
 Mitchell, Samuel, Dewsbury.
 Morley, C. R., Manchester.
 Morley, Henry, Derby.
 Mummery, J. Howard, London.
 Mundell, S., Exeter.
 Murray, G. M. P., Dublin.

Naylor, J. C., Leeds.
 Neale, W. H. Breward, Birmingham.
 Nicol, W. H., Leeds.

O'Duffy, J., Dublin.
 O'Duffy, K. E., Dublin.
 O'Meehan, Patrick, Limerick.
 Osborn, G. H., York.
 Owen, R., Wolverhampton.
 Oxley, L. J. R., Shrewsbury.

Parkinson, Thomas T., Bradford.
 Paterson, W. B., London.
 Pearsall, W. Booth, Dublin.
 Penfold, W. M., London.
 Petherbridge, James, Dundee.
 Pidgeon, W. J., Liverpool.
 Planck, Henry, Manchester.
 Porter, F. C., Nottingham.
 Price, Rees, Glasgow.

Quinby, H. C. Liverpool.

Quinby, M. G. C., Liverpool.
Quinlan, Thomas, Cardiff.

Read, L., London.
Reeves, Samuel George, Dublin.
Reinhardt, J. H., London.
Renshaw, Isaac, Rochdale.
Richards, F. W., Birmingham.
Richards, G. O., Richmond.
Rilot, C. F., London.
Rippon, Charles, Dewsbury.
Ritchie, T. P., Bristol.
Robb, A. W., Dundee.
Roberts, W. R., Lichfield.
Rogers, R., Cheltenham.
Rose, Frederick, Guernsey.
Routledge, H. G., Newcastle-on-Tyne.
Rowney, T. W. F., Derby.
Rymer, S. Lee, Croydon.

Sanders, J. J. H., Barnstaple.
Senior, John W., Huddersfield.
Seville, J. W., Exeter.
Sims, Charles, Birmingham.
Simms, William, Manchester.
Skipton, G. N., Manchester.
Smale, Morton, London.
Smith, A. Hopewell, Boston.
Somerville-Woodiwis, W., West Hartlepool.
Spotswood, John, Sheffield.
Stirling, J., Ayr, N.B.
Stocken, J., London.
Stokes, C., Sheffield.
Stokoe, J. Clarke, Newry.
Storey, J. C., Hull.

Studley, T. F., Dublin.

Tanner, Thomas, Manchester.
Taylor, John, Warrington.
Tibbits, H. W. O., Richmond, Yorks.
Tomes, C. S., London.
Tomlyn, L. C., Cambridge.
Tucker, J. S., Dublin.
Turner, J. Smith, London.

Van der Pant, F. H. M., London.
Van der Pant, F. J., Kingston-on-Thames.
Vice, W. A., Leicester.
Vinsen, F. H., Grantham.

Waite, W. H., Liverpool.
Wallace, James, Glasgow.
Wallis, Arthur P., Doncaster.
West, C., London.
Whittaker, G. O., Manchester.
Williams, E. H., Manchester.
Williams, E. Lloyd, London.
Williams, Herbert, Londonderry.
Wilson, A., Edinburgh.
Wilson, J. A., Bangor.
Wolfenden, Arthur B., Halifax.
Woodruff, W. H., London.
Woodward, R., Radcliffe.
Wormald, D. A., Bury.
Wormald, S., Stockport.
Wormald, T., East Oldham.

Yates, S. G., Ross.
Young, J. C., Warrington.

The following visitors were also present during the meeting:—
Messrs. Sidney Smith, Liverpool; R. P. Robinson, Aintree;
J. P. Headridge, Knutsford; De la Hey Moores, Ripponden;
W. B. Coghlan, M.D., Manchester; T. E. Sherratt, Manchester;
J. Shanock, Darwen; Thomas Ball, Eccles; J. Cumming, Bolton;
H. H. Wheeler, Rushall; S. Wallace; F. L. Tanner, Manchester;
R. Walker, Warrington; Dr. J. B. Davenport, Paris; Otto
Tsigmondy, Vienna; P. Withford, Sheffield; H. J. James, Sheffield;
Dr. Cook, New York, U.S.A.; C. Read, London; W. Ash,
London; Dr. Frederic Hewitt, and Mr. George Rowell, London.

Thursday, August 11th.

Meeting of the Representative Board.

THE members of the Representative Board assembled in the Council Chamber of Owens College, on Thursday morning at 9.30 o'clock.

The chair was occupied by the President of the Board, Mr. F. Canton. There were also present the Vice-president of the Board, Mr. W. B. Macleod, and the following members, viz., Messrs. E. Apperley (Stroud), G. Brunton (Leeds), J. A. Biggs, J. R. Brownlie (Glasgow), W. Campbell (Dundee), G. Cunningham, R. P. Lennox (Cambridge), W. E. Harding (Shrewsbury), M. Hughes (Croydon), M. Johnson (Chester), T. E. King (York), G. M. P. Murray, W. B. Pearsall (Dublin), I. Renshaw (Rochdale), W. R. Roberts (Lichfield), H. C. Quinby (Liverpool), J. Ackery, W. Coffin, D. Hepburn, S. J. Hutchinson, L. Matheson, J. H. Mummery, L. Read, J. H. Reinhardt, M. Smale, J. S. Turner, E. Lloyd-Williams, W. H. Woodruff, and W. B. Paterson, Hon. Sec. (London).

Letters from those unable to attend were read. The minutes of the last meeting were read and confirmed.

The reports of the hon. secretary, treasurer and School Committee were taken as read, and referred to the Annual Meeting.

THE PRESIDENT: We have now to settle the place of meeting for 1893, its time and president, in order that we may send up a recommendation to the Annual Meeting.

MR. ROBERTS moved that "the Annual Meeting for 1893 be held in Birmingham." He said they had there a gentleman, whom he knew, if nominated, would accept the office of the President of the Association, namely, Mr. Breward Neale. He was a gentleman who took the deepest interest in everything connected with the profession. He (Mr. Roberts) could not say that it was exactly an official invitation which he was bringing forward from the Branch, but from all he could hear he felt certain that if Mr. Neale were nominated, the members of the Association at Birmingham would be very pleased, and he was sure Mr. Neale would accept the nomination.

MR. CUNNINGHAM moved the adoption of the recommendation of the Business Committee, namely, "that the meeting be held in the north of England."

MR. KING said that the Committee came to no definite decision, as only Newcastle and Carlisle were mentioned.

The HON. SECRETARY said they had received no invitations from any branch for 1893, and those places mentioned were merely suggested with a view, if either were adopted, to the possible formation of a Northern Branch of the Association.

Mr. CUNNINGHAM said that it was the turn of the Central Counties Branch to receive them. The Board ought to deal with invitations from branches, and not with invitations from individuals.

Mr. KING said he felt sure that the nomination of Mr. Neale would be unanimously accepted.

Mr. SMALE pointed out that the British Medical Association were to meet in Newcastle next year.

Mr. TURNER said there was a little informality in respect to this invitation. As it was, he did not see how the Board could announce authoritatively the matter to the General Meeting. If they could not do that, the great advantage of meeting in any particular place was lost, because they published to the world generally the name of the town and the name of the President-elect.

Mr. HUTCHINSON proposed that the meeting take place at Durham.

Mr. COFFIN said he did not feel quite in the same position as he did before he knew there was an invitation from such an important centre as Birmingham. So long ago as last February he was empowered to invite either individuals or societies to visit the Chicago Exhibition, where they would be received as guests of the Dental Congress to be held during the Exhibition. He need not enter into details until matters came more to a head. For the present he was, on behalf of the executive of the Congress, offering a strong and cordial invitation for the meeting of the British Dental Association to take place in Chicago next year.

Mr. QUINBY said he had no doubt the Americans would be glad to receive them, but he thought that the meetings of the British Dental Association ought to take place within the limits of Great Britain.

The PRESIDENT said he thought they would agree with him that it was a very handsome invitation. There was one difficulty which occurred to him apart from difficulties which had been mentioned incidentally in the discussion as to the Association meeting in Chicago in August, viz., how far they would be justified in holding the Annual Meeting out of Great Britain. He

believed there was only one precedent for such action on the part of a scientific society, viz., that of the British Association, who went to America on one occasion.

Mr. CUNNINGHAM said he considered such an invitation should come before the whole Association. Was it not possible that a compromise could be effected? Could they not have a part of their meeting on one shore and part on the other? He pointed out that a large number of other societies would probably hold their meetings in America next year.

Mr. PEARSALL said what was proposed amounted in his opinion to a change of policy. They all knew the efforts that were made to induce the Association to visit Ireland, and they would never come until a branch was formed. That was the condition, and when the branch was formed then the Association visited Ireland. He thought they ought to confine themselves for the annual meetings to definite places where the scientific progress of the Association was assured. In regard to the invitation from America, he thought that while sending a courteous reply to the invitation, that it was their bounden duty to stick to the United Kingdom. He should vote in favour of Birmingham. He did not think they were warranted in going to the north of England.

Mr. KING pointed out that members in the north of England were affiliated with the Midland Counties Branch, and that therefore he thought it would be found impracticable, without separating the two bodies, to have a separate branch in the north.

The PRESIDENT desired to have some definite proposition now put before the meeting.

Mr. ROBERTS said he saw no reason why they should not have a successful meeting in Birmingham next year, and he would propose that the Annual Meeting of 1893 be held in that town.

Mr. PEARSALL seconded the proposition.

Mr. KING, in supporting it, said they had had meetings in the north, south, east and west, but never yet in the Midlands.

Mr. G. BRUNTON also supported the motion.

On being put to the meeting the motion was carried.

Mr. COFFIN believed it was necessary for the decision as to the place, &c., of the next Annual Meeting to be arrived at by the Association in general meeting.

The PRESIDENT: That is so. This is only a recommendation.

Mr. COFFIN wished to ask whether the recommendation as to Birmingham would go alone to the General Meeting, or whether

the Association would have the advantage of having laid before it any alternative invitations which had been offered.

Mr. QUINBY felt that the recommendation from America ought to be brought before the Association.

The PRESIDENT: I think you may take it that it will be done.

Upon the question of the President for 1893, Mr. ROBERTS proposed that Mr. Breward Neale be elected as President of the Association for next year.

Mr. CAMPBELL seconded.

Mr. COFFIN asked whether any other invitation, not endorsed by this Board meeting, could come before the Annual Meeting.

The PRESIDENT: They will probably be mentioned from the chair.

Mr. COFFIN: It would be agreeable to me if the invitation I have in mind were accompanied by the name of Mr. C. S. Tones, as President of the Association, if some method can be suggested by which that can be done.

Mr. MUMMERY proposed that Mr. Coffin's invitation and suggestion be brought before the Annual Meeting.

Mr. WOODRUFF seconded, and the proposition was agreed to.

Mr. LLOYD WILLIAMS thought that it was impossible to hold the Annual Meeting in America, but he desired to suggest that a delegation should be formed from among the members of the Association, and be empowered to represent the Association at the American Congress, and if possible Mr. Tones should be asked to become the president of the delegation.

Mr. CUNNINGHAM thought Mr. Lloyd-Williams' suggestion worthy of consideration. He personally was in favour of such a delegation.

Mr. ROBERTS pointed out that the splitting up of the Association into two parts would not conduce to the success of the Annual Meeting if held in Birmingham.

Mr. COFFIN wished to make his position quite clear. He would not like to do or say anything that would militate against the success of the meeting if held in Birmingham. He considered such members as could go to America had better go there privately.

After some few further remarks from Mr. LLOYD-WILLIAMS, the subject dropped.

Upon the question of the date of meeting, Mr. PEARSALL wished to point out that the fixing of the meeting in the middle of August was very inconvenient, and he thought that it would be well if they

followed the example of other associations, and fixed their meeting to take place earlier in the year. He begged to propose that "the Annual Meeting shall, in future, be held at the end of April or the beginning of May."

Mr. WOODRUFF seconded. The motion was also supported by Mr. HARDING, Mr. KING, and Mr. ROBERTS.

Mr. HUTCHINSON moved as an amendment that "the question be discussed at the General Meeting."

Mr. JOHNSON seconded.

On being put to the meeting, however, the amendment was lost, and the resolution was carried as a recommendation to go before the General Meeting.

Mr. COFFIN said he had intended to make a motion with reference to Bye-law 18, but seeing the lateness of the hour he would defer it to some future meeting.

On the motion of the PRESIDENT it was unanimously agreed to recommend for election Mr. J. Smith Turner, the retiring President of the Association, as a Vice-President.

Various matters of formal business were transacted and the proceedings terminated.

Business Meeting.

The PRESIDENT, who met with a warm reception, thanked the members for the welcome given to him, and congratulated the Association on such a numerously attended, and what promised to be, such a successful meeting. Their first business, he said, related to letters from gentlemen expressing regret at their inability to attend the meeting.

Mr. W. B. PATERSON, the Hon. Sec., having done this, read letters of congratulation for the success of the meeting from the Principal and from the Dean of Owens College.

The PRESIDENT said he would, after hearing those satisfactory letters, ask the members to listen to the treasurer's report, which, he believed, they would find equally satisfactory.

Mr. W. H. WOODRUFF, the treasurer, read the following report :

I have the pleasure to report that the financial condition of the Association is in every way satisfactory, and shows steady and continued progress.

The addition in numbers to our ranks, as perhaps might have been

anticipated, has not been so large as in the preceding year when the London meeting was in prospect, but still a substantial addition of 39 new members leaves us at the present time with a total of 819 after deducting 25 during the twelvemonths for following reasons:—

Deaths 4, resignations 2, and removals for non-payment of subscription 17.

I could wish that, before this period of the year, all members had remembered their debt to the Association so that I should have no report to make of those in arrear, but we have now 16 members in arrears for 2 years, and 150 members for 1 year. Total 166.

The legal expenses for the year have been practically the same as last year, and although we have had no severe prosecutions, there have been thirteen cases remitted for legal advice. The Annual Meeting expenses were small for such an important meeting as that of last year, being only £99 7s. 11d. or more than £30 less than the preceding year. There is a steady increase in the Journal Account, both with the outgoings and receipts, and I feel sure all members will be glad to see the pages of the Journal more richly embellished though it necessarily entails greater expenditure.

In conclusion, I am happy to inform you that a further sum of £200 has been placed to our deposit account which now stands at £700, and the present balance at the bank amounts to £256 5s. 7d.

The report was unanimously approved.

The HON. SEC. afterwards presented his annual report, which was in the following terms:

GENTLEMEN,—The past year, although comparatively quiet as far as the reported business of the Association is concerned, may yet assume an important position in its history. Although the business may not be of a character to admit of detailed notice in a report, it is not unusual, I believe, for a secretary of such an Association as ours, to ask for the indulgence of the Members in reference to the particulars of what may have been done, or may be in process of being done, during the course of the year, for the very cogent reason that much of the business may be in an unfinished state, and for another equally cogent reason, that it would be impolitic to publish all that had been done or was likely to be done in certain matters of business. And when I state to you that the important question of “covering” of unqualified persons by registered dental practitioners is now *sub-judice*; and further, that other grounds of offence of a more intricate nature against the “Dentists Act” are in process, I hope, of solution, you will at once see that anything like a detailed account of those questions would be extremely injudicious and prejudicial to the welfare of the profession at large. The important decision in the case of *Robinson v. the Royal College of Veterinary Surgeons*, recently given by Justices Hawkins and Wills in the Queen’s Bench Division of the

High Court of Justice, has not been lost sight of by your Executive, and it is anticipated will prove to be more than of transient importance for both the nature of the offence, viz., the use of words implying by description that the user, an unregistered person, was a properly qualified or registered practitioner, and the similarity of the Veterinary and Dentists Acts in the matters of principles and draughtsmanship. together indicate a parallelism in point of law between the two professions which, as I before mentioned, is a matter engaging our most careful attention. The question of "covering" has advanced beyond the pale of observation, I am happy to say, and is now before the proper tribunal whose decision we may expect at no distant date.

During the year we have had the usual number of meetings of the Representative Board, and the members of the Business Committee have frequently met as the state and urgency of matters demanded. Much of the time of these bodies has been, however, devoted to the consideration of Bye-law 18 and the collateral circumstances connected with it. The results of their deliberations are already before you in the method of election that has been adopted, for the time being, to the Representative Board (the result of which election you will hear later on). The Executive are aware that in taking this step they have by their action, more or less, held in abeyance certain points of importance in the Bye-laws of the Association, but it must be remembered that in all cases of transition or of altering Bye-laws there must be an intermediate or suspensory period when it may be impossible to comply with all the conditions of the Bye-laws, inasmuch as the affairs of the Association must go on with proper regularity during the transition period; and they would urge upon members the fact that they are endeavouring to meet, what they consider, the general views of the Association as a whole; and if, perchance, the Bye-laws have not been respected in every possible particular it has been from no want of proper appreciation on our part, but rather with a desire to carry on the business of the Association as smoothly and as efficiently as possible during whatever changes may be made. By your kindness, gentlemen, in having responded to this Ballot you have afforded to the Executive a certain indication of your willingness to support them in the course they have adopted.

The Report of the Committee of Investigation of the Teeth of School Children will be laid before you, and the results so far, I think, may be considered satisfactory. It should be remembered that the whole business is new to us as an Association, and is also new to everybody in this country; and the Committee, therefore, deserves at your hands the greatest possible latitude in the conducting of this important business of the Association, and you may rest assured that whatever form it may ultimately assume it will do so under the most careful and diligent attention of your Committee.

One result of the Association's efforts to arouse a proper interest in and appreciation of dental surgery in connection with the Army and Navy Medical Services has recently been published. I allude to the action of the Medical Director-General of the Navy, who, recognising the justice of the claims we have made for certain branches of the Service receiving dental attention, has ordered a limited number of naval surgeons on furlough to various hospitals, with a view to their acquiring a knowledge of some of the elements of our art, viz., those more especially relative to the immediate relief of pain.

Although this is not all that we require, or that the Service requires, it is at all events a recognition of the necessity of dental education and dental skill being required for the naval service generally. This, we may safely say, is a concession to the utility and necessity of dental surgery which has never before been made, and which, we may fairly assume, never would have been made, but for the efforts of the British Dental Association. It is, however, only a beginning, we may say a small beginning, of what we, with your support, hope yet to be able to accomplish on behalf of both the army and navy, and also of the training institutions which supply recruits for both services.

Happily or unhappily, as the case may be, there are no instances of direct litigation entered into by the Association to report to you, but the case already referred to, and the notorious case of Partridge *v.* the Medical Council, show that the course of legal events is tending to establish our position under the Dentists Act, and especially has the latter case demonstrated that the Medical Council has not gone beyond its powers in its successful administration of the Act. The decisions of the Judges of the Lower Courts and of the Court of Appeal, in the case of Partridge, all point to this successful administration of the Medical Council.

Owing to the increase of business generally, and it is hoped the enhanced interest shown by the whole body of members in the affairs of the Association, it has been considered necessary to rearrange definitely and to consolidate and classify the method of procedure at our Annual General Meetings.

The Representative Board having charge of the ordinary formal arrangements for the conducting of the business at General Association Meetings, have decided upon certain changes in the procedure hitherto observed at these annual gatherings. In future the business of the Annual Meeting will commence by the retirement of the President and the induction of his successor, who will immediately upon occupying the chair proceed to take charge of the various matters placed on the agenda paper, and the Annual General Meeting will be concluded by a formal business meeting chiefly for the passing of votes of thanks, &c. It is believed that in this way the pressure of work upon the official members of the association will, in some measure,

be considerably lightened, and for this I, as one, beg to express my due sense of gratitude.

The other business that has fallen to my lot, although fairly abundant, has been of a routine character, scarcely needing mention in a report like this.

In conclusion, gentlemen, I sincerely hope that by the time of our next meeting the internal affairs of our Association will be so arranged as to leave those in active official charge a little more leisure for more important external business. And I would only add the expression of a hope that the sure and steady progress characteristic of this Association hitherto in all its efforts for the promotion of the truest and best interests of the dental profession as a whole, may equally well continue in the future, until the desired goal of our legitimate ambition is reached.

The report was adopted without discussion.

The PRESIDENT said there was in connection with the Association, a committee of literary referees—a standing committee in readiness in cases where their services might be required at any time in reference to matters of a literary character. The matter was brought before the meeting last year, and he believed all the gentlemen were re-appointed. The Hon. Secretary informed him that it would be perfectly right to appoint them again this year.

The HON. SEC. explained that the committee was at present constituted as follows:—Dr. A. W. Baker, Messrs. G. Cunningham, W. E. Harding, A. Kirby, L. Matheson, J. H. Mummery, Drs. J. Smith and R. T. Stack, Messrs. C. S. Tomes and E. Lloyd Williams.

All the members were unanimously re-appointed.

The PRESIDENT said they would now announce the result of the ballot taken for the election of the members of the Representative Board, which this year had been conducted under the new system. At previous meetings a considerable amount of time had been taken up in checking the votes for the office bearers. The new method of election, through the post, seemed to have been very successful as far as the number of members who had this year taken part in the election. There had been 406 voters—a great advance upon anything they had had before. The result of the ballot, with the number of votes given to each gentleman, was as follows:—Messrs. C. S. Tomes (London), 373; R. H. Woodhouse (London), 315; D. Hepburn (London), 312; J. T. Browne-Mason (Exeter), 312; J. R. Brownlie (Glasgow), 262;

A. Kirby (Bedford), 257; E. Lloyd Williams (London), 245; R. P. Lennox (Cambridge), 238; T. E. King (York), 228; C. Rees-Price (Glasgow), 224; J. J. Andrews (Belfast), 192; J. H. Whatford (Eastbourne), 183. 406 members voted, one voting paper cancelled.

All these had, therefore, been elected by the ballot. The scrutineers present were Messrs. F. Canton, W. B. Paterson and J. S. Turner. Mr. Morton Smale and Mr. Pink were also present during the count.

Mr. BOOTH PEARSALL said he wished to point out to the members that what was called a ballot was not a ballot at all. Each of the voting papers was numbered, and the voter could be identified. He begged to suggest that in the pages of the *Journal* those members who took an interest in the conduct of business should be invited to express their opinion as to how the ballot might be conducted, not only in secret, but in a business-like and rapid way. He did not wish to say anything about the gentlemen who had been elected to do the work, but he contended that the mode of election could not be called a ballot if the various papers could be identified. He had not voted because the system was not one of secrecy. Perhaps the matter might be brought under the notice of the Executive. If they wanted to have a proper ballot the voting paper should be enclosed in an envelope, which should be opened by the chairman of the ballot. The envelope might have on it the name of the voter, but when it was opened the paper should be put into the box without being examined. He would propose that members be invited to express their opinions as to the best method of conducting the ballot.

THE PRESIDENT: It is obvious to everyone that there must be some method of identifying the papers returned, to see that the proper persons are voting. The way is to identify them with the counterfoil retained at their printers lest any difficulty should arise, and that does not give a trace of the name of the voter. How does Mr. Pearsall propose to obtain any expression of opinion from the members?

Mr. PEARSALL: Through the columns of the *Journal*.

THE PRESIDENT: I suppose the *Journal* is open at any time, to any gentleman who likes to write to it on the subject?

Mr. MURRAY said he would second the motion. His opinion was that the best way was that the envelope should bear the

name of the voter, that it should be opened by the presiding officer, and the voting papers put into a box to be examined afterwards.

The motion was negatived by a large majority.

The PRESIDENT said the next business was to decide the place to hold the next year's meeting. There was a recommendation that Birmingham should be selected as the meeting place, and that Mr. Neale be invited to become president. There was another invitation for the Association to go to America, which would require the careful attention of the members. He, however, had much pleasure in proposing that the recommendation of the Board that their next annual meeting be held at Birmingham, and that Mr. Neale become the president of the Association, be adopted.

Mr. H. C. QUINBY, the president-elect, said he had much pleasure in seconding the motion.

Mr. COFFIN said he would like to say something as briefly as possible about the invitation from America. Some few weeks ago, when there was no invitation, either official or unofficial, before the Executive Committee of the Association, he placed himself in communication in America with the officers of the proposed large gathering of their colleagues at Chicago next year. Taking advantage of powers given to him as long ago as last February to invite any individuals or Association from this country to meet there next year, he placed himself in communication with the Chicago officials, pointing out frankly that the British Dental Association had no formal invitation to meet next year, and suggesting that they should write to the Association an invitation to hold their meeting in Chicago. He might say that the matter had been taken up with great enthusiasm in America, and from all parts he had received letters, cablegrams, congratulations and wishes to the effect that they hoped the Association would see its way to accept the invitation to hold their next year's meeting in Chicago. The invitation was for any time most convenient to the Association between August 17th and August 27th, when the World's Columbian Dental Congress would be going on. He would like to say that the conditions of the invitation were that no expenses whatever would be incurred by the Association; that suitable private meeting rooms would be provided for the separate use of the Association. That apart from routine and formal business, the Association would merge into the Congress for reading and discussion of papers or communications

and demonstrations in the various sections. That all papers, communications, demonstrations or exhibits approved of by the executive of the British Dental Association would be assured acceptance. That the copyright of all papers presented or read by members of the Association should be the joint property of the Congress and the Association. It was intended that Association papers be taken as nearly together as possible on dates decided by its Representative Board or Business Committee. He then read the following letter from the Chairman of Committee of Invitations:—

Buffalo, N.Y., July 28th, 1892.

WALTER COFFIN,

DEAR SIR,—I am in receipt of a telegram to indicate that there is a movement on foot to bring the British Dental Association to Chicago next summer. Let me say that the very intimation of the possibility of such an event will arouse an enthusiasm in this country that will find vent in every direction. As soon as it becomes at all known, there will be such an assurance of sympathy in the movement as will convince British dentists that Americans desire to be one with them in every good word and work.

Let me assure you that you are fully authorized to invite the Association to meet in this country next year, and to guarantee that all the expense which you will incur in doing this will be refunded you by the Dental Congress. Every facility for transacting the business of the Association will be furnished, and the comfort of the members will be made the special charge of the Congress.

We will look to your entertainment and see that you are comfortably disposed of. Whatever arrangements you make for the reading of papers and their final disposition will be concurred in by the Congress.

We will appoint a special committee to arrange all the details with your committee, and will charge ourselves with all the necessary arrangements on this side. A hospitality that shall be all that you could desire will be yours, which will indicate how we appreciate the visit of our English brethren. We will convince every man that he is in the house of a brother indeed.

You will have heard from us before this will reach you, but I write at once that it may explain matters further, and in hopes that you will receive it before the time for your meeting. There is no doubt that much more will be done than I have herein promised, but I will not pledge any further than I feel that I have authority to do. When the committees meet we can then act further. Let me assure you of my high personal esteem and regard.

Very truly yours,

W. C. BARRETT.

*Chairman Committee of Invitations,
Columbian Congress.*

He also read the following letter which he had received from the Chairman of the Executive Committee :—

New York, July 29th, 1892.

To the Officers and Members of the British Dental Association.

GENTLEMEN,—You are cordially and fraternally invited to attend the World's Columbian Dental Congress, to be held in the City of Chicago, August 17th to 27th, 1893. Everything will be done to make your visit pleasant and enjoyable. All necessary information will be forwarded to your officers and members within a short time.

I am, most sincerely,

W. W. WALKER.

The circumstances of the case, he admitted, had been altered to some extent by the invitation from Birmingham, and he was obliged for being permitted to place before the meeting the invitation which he had to convey from his colleagues in America.

The PRESIDENT remarked that a few minutes could be well spared out of a busy day to hear expressions of opinion upon the subject. He did not know much himself about these international congresses, but there were some gentlemen present, no doubt, *au fait* on these matters, and a few minutes would be well spent in listening to the different opinions. They were bound to make the Americans some response for their generous invitation, but he did not see how they were to pass over an important Branch of their own Association.

Mr. QUINBY said, he, personally, was afraid he would not be able to go to Chicago, and he thought there were many others in the room in a similar position. He begged to move that a vote of thanks be given to the executive of the World's Columbian Dental Congress for the invitation to hold the next meeting in Chicago.

Mr. MACLEOD said he had had the pleasure and honour of being entertained on a former occasion in connection with the International Congress held at Washington. He rose therefore with great pleasure to second the motion of Mr. Quinby, and he could assure the members from personal experience that, had they been in a position to accept the invitation, everyone who went to America would have returned well pleased, and he was sure that there was not one word in the invitation, or one promise made, that would not have been fulfilled. He, like the President, had been at congresses, but he did not come away with the same opinion as he had. Like their own conferences the congresses were gaining

experience year by year, and each meeting was better than its predecessor. He was sure if the President had the time to go over to Chicago next year he would alter his opinion. He seconded the motion with pleasure.

Mr. HARDING said he would support the motion. He knew so much of the hospitality of their friends on the other side of the water, that the promises of welcome would be fulfilled to the utmost.

Mr. WEST said, the gentlemen who had spoken had come to the conclusion that it was impracticable to accept the invitation, now he, with Mr. Harding, had the pleasure of visiting the International Congress at Washington, and he would reiterate the statement that he was certain there was not one word in the letter of invitation that would not be thoroughly and completely verified. Every member who had the opportunity of visiting Chicago would come back to England with a feeling of a deeper fraternal kindness towards the Americans than he ever had before. He would, therefore, propose that the next meeting of the Association be held at Chicago.

Mr. STOCKEN said he would willingly and with great pleasure second the proposal.

Mr. COFFIN said as there was now a proposal of this sort before the meeting, he craved permission to add a few words to what he had already said. In the first place he thought the name of the gentleman who had been already spoken of as an eligible president for next year would have great weight not only here but in America. With regard to the considerations of time and expense entailed by a visit to Chicago, he would say he had gone carefully into the matter. Every member might go from Liverpool to Chicago and back again, first-class railway travelling between New York and Chicago, and intermediate passage in the swiftest and finest steamers in existence, for £19 or £20. With regard to visits of associations to America, they had many brilliant and successful examples, such as the British Association and other institutions. There were many matters of detail which would be the subject of future arrangement. He had tried to make the situation as clear as possible, and he hoped he had left no doubt in the minds of members as to what might be done and what could be done. He would be glad to answer any questions.

Mr. ROBERTS said he supported the original motion to hold next years' meeting in Birmingham, and the appointment of Mr.

Neale as the president for that year. Birmingham was a great educational centre, and had an excellent school of medicine and school of dentistry. He was sure Birmingham would do its very best to give the Association a hearty welcome.

Mr. GROVE remarked that as a member of the Council of the Central Counties Branch, he endorsed what Mr. Roberts had said. If the Association went to Birmingham next year, he was sure the President and the members of the Central Counties Branch would do everything in their power to make members of the Association generally welcome, and leave such an impression of Birmingham hospitality that they would want to go again very soon. It was a place well adapted for meetings of that sort, and possessed splendid municipal buildings and surroundings.

Mr. NEALE said he had not the slightest intention of speaking on the matter, but he would say that if the Association wished to go to America it would be of the greatest possible pleasure to him to make one of the number, but if it was the wish of the Association to go to Birmingham they would be pleased to see the members. If the Birmingham members consulted their own wishes and interests in the matter, they would have deferred the visit for another year, so that if the Association wished to go to America Birmingham would not stand in the way.

Mr. MASON expressed the opinion that it would be a good thing for the Association to go to America in 1893, and visit Birmingham in 1894.

Mr. C. S. TOMES said he did not wish to throw cold water on the very generous invitation sent them from Chicago, but he would like to call the attention of the meeting to one aspect of the question that had not been touched upon by any of the previous speakers—that was that if they were to go to America it was only desirable they should do so if they could secure the adhesion of a large number of members, so that the meeting there should be a success. If not, they should not go at all. He did not see how they could have any information as to how many members were likely to go, and therefore he would suggest that instead of a vote being taken now upon the question whether they should go to Chicago or Birmingham, the opinion of the general body of members should be obtained. He should be sorry to go to Chicago, and then get a meeting of thirty members, and he did not see at that meeting how they could find out what would be the likely number who would go to Chicago.

Mr. CUNNINGHAM supported the proposal to go to Chicago next year. He said many in the room were already pledged to go to Chicago next year. He agreed with Mr. Tones that it would be a good thing if they could ascertain how many members would make an effort to go to America. An invitation to Birmingham had occurred in the past, and would occur again, but an invitation to hold the Association's Annual Meeting was one that was only likely to occur once in the professional lifetime of one of them. It was a rare occasion indeed, and he believed that a sufficient number of members would go to make a decent show. They could then combine their holidays with the meeting, as well as perform an act of professional patriotism.

Mr. PEARSALL said he would second the proposal to hold the next Annual Meeting in Birmingham. He did not consider, that generous and kind as was the invitation from Chicago, that it was practicable for the Association to accept it. He considered it was better to do their own work at home.

Mr. CANTON said they must, in declining the invitation for America, express their regret that they could not see their way to accept it.

Mr. COFFIN remarked that one month would be sufficient for a visit to Chicago next year.

Mr. RICHARDS also spoke and expressed his conviction as a Birmingham man that the Association would be welcomed if it would visit his town.

The PRESIDENT said that the real difficulty was in getting sufficient members to undertake the journey. If they could not get up an enthusiasm on the part of members of the Association for Chicago and its surroundings it was no use in saying that the Association should go there. If they were to find out who were going to America next year, and then appoint those gentlemen as representatives of the Association they would be taking perhaps the nearest and easiest way out of the difficulty. He supposed if the amendment was carried, namely, that they decided to go to Chicago, there must be some suspension of the bye-laws of the Association, which set forth that the Annual Meeting should be held in some town in the United Kingdom.

A show of hands was then taken, with the result that about twelve persons voted for the amendment to go to Chicago, and the remainder of those present against it. The original motion to hold the annual meeting at Birmingham was put to the meeting

and carried without any dissentients. The motion included the election of Mr. Neale as president for next year.

Mr. NEALE, who was warmly received, said he never had much to say, and on this occasion there was very little time to say it in. He thanked the members for the way in which they had accepted the proposal. He was afraid they would not have such a meeting as they had had; he would only say that the Birmingham members would be pleased to see them and do their best to make their visitors comfortable.

Mr. STORER BENNETT proposed that a cordial vote of thanks be accorded to the Chicago gentlemen for their generous invitation. This was carried unanimously.

The PRESIDENT said he had now to ask the attention of the meeting to a question both difficult and thorny. Hitherto the Annual Meeting of the Association had been held in September, now the time had got to August, and many members were of opinion that it should be again altered. He hoped gentlemen would express their opinions briefly on this matter.

Mr. HARDING proposed that the Annual Meeting next year be held some time during the spring vacation at Mason's College, Birmingham. He could not say definitely when it would be, but the spring vacation usually took place some time in April. The exact date was unknown. That period of the year would suit many members better than later in the year, when they were taking their summer holidays.

Mr. PEARSALL seconded, and Messrs. Woodruff, Coffin, Apperley and Roberts also supported the motion.

Mr. NEALE said, he had really no opinion to express on the subject. He would place himself entirely in the hands of the meeting.

Mr. ROBERTS said, there were many attractions in Birmingham to occupy the leisure time of members.

Mr. E. LLOYD WILLIAMS suggested that, as the speakers seemed agreed upon the advisability of changing the date of the meeting, the vote should be taken at once.

The PRESIDENT pointed out that there was no definite time before them, but April or the beginning of May seemed to be the probable time.

The motion was carried unanimously.

The PRESIDENT moved that votes of thanks be awarded to the Governors of Owens College, to the Mayors of Manchester and

Salford, the Devonshire Hospital, the Directors of the Manchester Ship Canal, and the various local Committees. He explained that it was usual to pass the votes of thanks by one motion, and leave it to the Secretary to send an expression of thanks to each.

The motion was carried.

Upon the motion of Mr. BOOTH PEARSALL, seconded by Mr. QUINBY, a cordial vote of thanks was accorded to Mr. George G. Campion for his services on behalf of the museum at Owens College.

Mr. CANTON said he wished to move the election of Mr. Smith Turner, the President, as a Vice-President of the Association in order that they might retain permanently the services of that gentleman. It was an honour to those gentleman who had worthily filled positions in the Association, and no gentleman had filled all the requirements of his office more truly and effectively than the present worthy president, who was leaving the chair that day. He would, under ordinary circumstances pass away from all official position and in order to prevent such a calamity he had pleasure and honour in bringing forward the proposal to make him a Vice-President.

Mr. PEARSALL, who seconded the motion, said Mr. Smith Turner during his term of office had always been his cordial friend. He had now the opportunity of acknowledging in some slight degree his heart-felt gratitude to Mr. Turner for the support he had always given him in many reforms he had instituted in the Association.

Mr. MACLEOD, who supported the motion, said he had for a long time been of opinion that Mr. Turner should be one of the vice-presidents of the Association.

Mr. H. CAMPION remarked that as a very old member of the Association he could not let the opportunity go by without expressing his approval of the proposal before the meeting. He had known for a long time the good practical and laborious work done by Mr. Turner on behalf of the Association. He would almost say that without Mr. Turner the Association would scarcely have been in existence. The least thing they could do was to carry the proposal unanimously.

Mr. QUINBY put the motion to the meeting, and it was carried with unanimity.

The PRESIDENT, who was enthusiastically received, said he scarcely knew what to say. He thought he was case hardened

to that sort of thing, but it seemed he was not quite up to the mark yet. He would try to do his best, whilst he retained the office, in the interests of the Association. He would simply ask their attention for a few moments longer whilst he read his valedictory address.*

At the conclusion of the address Mr. Quinby proposed a vote of thanks to the retiring president, and it was carried by acclamation.

Mr. TURNER vacated the chair, which was taken, amid cheers, by Mr. Quinby, who delivered his inaugural address.*

On the motion of Mr. SMITH TURNER, seconded by Mr. LEE RYMER, a hearty vote of thanks was passed to the president for his address.

Mr. W. BROUGHTON read a paper on "The Application of Electricity to Dental Purposes," which we print as an Original Communication.

The paper was practically illustrated, and amongst the apparatus exhibited were Cuttriss, Wallis & Co.'s gas engine and dynamo, a new motor with governor, motor and stand for grinding and polishing, and batteries for recharging accumulators.

At the conclusion of the paper the PRESIDENT expressed the thanks of the meeting to Mr. Broughton for the trouble he had taken in placing such an excellent, and in many respects novel, display of electrical dental apparatus before the members, and stated that Mr. Broughton would on Saturday morning demonstrate practically the various instruments shown, and others in another room in the Demonstration Section.

The members then adjourned for luncheon at the Grand Hotel.

Friday, August 12th.

The Benevolent Fund.

THE business proceedings opened with a meeting of the friends and subscribers to the Benevolent Fund in the Council Chamber at Owens College.

Mr. LEE RYMER presided, and there were also present:—Messrs. C. S. Tones, C. Rogers, J. Smith Turner, H. C. Quinby, W. H. Waite, C. West, G. Henry, W. B. Bacon, Morton Smale,

* Mr. Smith Turner's valedictory address and Mr. Quinby's inaugural address appeared as Original Communications in our last issue.

W. H. Woodruff, W. B. Paterson, J. H. Mummery (acting secretary, *pro tem.*), and others.

The CHAIRMAN announced that he had received a letter from the hon. sec., Mr. George Parkinson, regretting that owing to illness in his family he was unable to attend the General Meeting; he also announced that Mr. Mummery had undertaken his duties on this occasion.

Mr. MUMMERY then read the reports of the Committee of Management, and also that of the treasurer:—

GENTLEMEN,—Your Committee beg to submit to the subscribers and contributors of the Benevolent Fund of the British Dental Association their ninth Annual Report, and the Treasurer's Annual Statement, duly examined and certified by the auditors, extending from the foundation of the Fund in 1883, to the end of the present financial year, June 30th, 1892.

The cases that have come before your Committee during the past year have been of the usual character, but not altogether of so distressing a nature as in previous years; they have consisted principally in relieving the widows and children of deceased or indigent dentists, who have, through no fault of their own, but generally from premature death or other causes, left their families in absolute poverty, or by ill health and bad luck been unable to support them; the most satisfactory way your Committee have found by experience to give help, has been by educating the children, and so take them off their mothers hands, or by giving a grant of money or a weekly allowance.

Your Committee have apprenticed three children during the past year to useful trades, and are pleased to say they are all doing well and giving satisfaction to their employers.

This makes a total of six children who are now apprenticed to various occupations—such as the watch and clock trade, millinery and dressmaking business, and provision merchants. One is being trained for the Royal Navy or Merchant Service, whichever service he may be found suitable for at the expiration of his training. One has been apprenticed to the boot and shoe trade (manufacturing department); and one has been helped to pass his preliminary examination of the R.C.S. for the L.D.S. diploma, and is now receiving a weekly sum of money to help support him during his studies for the rest of the curriculum.

Your Committee have much pleasure in stating that they have been instrumental in placing a large family in a position of self support. This case has given your Committee a great deal of anxious consideration, and has for some time been under their careful observation; and much one way and another has been done for them; the father, whose health was very bad, has now almost completely recovered, and with the help of the fund has obtained a professional berth which,

Benevolent Fund of the British Dental Association.

BALANCE SHEET AS AT JUNE 30TH, 1892.

Dr.

Cr.

CAPITAL ACCOUNT.

	£	s.	d.		£	s.	d.
Investment in 2½ per cent. Consols to June 30th, 1892 (£1,305 4s.)	...	...	...	Balance of Capital Account...	...	...	...
	1,200	3	0				1,200 3 0
	£1,200	3	0				£1,200 3 0

REVENUE ACCOUNT.

	£	s.	d.		£	s.	d.
Cash in Bank at July 1st, 1891...	...	...	...	Benevolent Allowances ...	...	...	...
Cash in hands of Secretary at July 1st, 1891 ...	150	4	4	Postage and Miscellaneous ...	...	...	353 2 4
	1	1	0	Stationery and Printing ...	...	...	11 0 4
Donations...	...	...	...		...	...	10 10 0
Subscriptions, 1890 ...	...	...	...	Cash in Bank at June 30th, 1892	...	...	374 12 8
Do. 1891 ...	2	12	0	Cash in hands of Secretary at June 30th, 1892	184	15	9
Do. 1892 ...	59	6	6		20	9	0
	190	1	0				205 4 9
Interest on Investments ...	...	...	...				£579 17 5
	251	19	6				
	31	16	4				
	£579	17	5				

July 29th, 1892.—We have examined the Books of the Benevolent Fund of the British Dental Association with the Vouchers, and hereby certify the above Balance Sheet to be correct,

(Signed)

WILLIAM ASH,
CHARLES WEST,
LEONARD MATHESON, } *Auditors.*

should his health continue good, and nothing else supervene to prevent it, will put them beyond the reach of poverty again. Your Committee are also educating the two eldest boys of this family.

Several dentists have been helped to tide over temporary trouble, and are most grateful for the timely help.

Several widows have also been aided in a way that has saved their homes from destruction, and helped them to overcome the struggle for existence.

Several cases have applied for help, which, on the strict investigation which is given to all, have proved to be either unworthy or ineligible.

In accordance with Rule XX., this Annual Report is now offered for your acceptance and approval, and in conclusion, the best thanks of the Association are due to the auditors, Messrs. Ash, West and Matheson, for their kindness and attention in auditing the accounts, and also to Mr. George Tawse for his skill and generosity in preparing the balance sheet.

GENTLEMEN,—As I cannot be present at the Annual Meeting of the subscribers and donors to the Benevolent Fund of the British Dental Association, I, as treasurer, send you my report of its financial position, leaving to our most valuable and indefatigable honorary secretary, Mr. George Parkinson, the pleasure of giving you some account of the interesting work you commit to our care—for it is he who generally inquires into the cases applying for help, and he therefore knows more than anyone else of the history of those to whom your generosity is such a boon.

Our gross receipts for the past twelve months compare favourably with those of preceding years—they were in 1890, £398; in 1891, £355; and this year, £428—but this increase is due to the larger amount of the donations, they being this year £144 as compared with £63 in 1891. Of course, we are thankful to have the money contributed in any way; but as donations often depend on some transitory cause, they cannot be looked upon with the same confidence as an income produced from subscriptions. Unfortunately, under this latter head we have had a decrease for the last three years; they were £276 in 1890; £260 in 1891, and only £251 this year. Now this should not be, for although we must lose subscribers each year from death and other causes, the same period adds to the number of the members of our profession, so that if all were interested as they should be in helping their unfortunate brethren, the list of subscribers should always be increasing. I trust, therefore, that each subscriber will do his best to get others to help by subscriptions to the good cause, and so give your Committee less anxiety as to the future of the Fund.

We have not increased the amount of our investment since the last Annual Meeting. The amount of consols held by the trustees of

the Fund is £1305 4s., costing £1200 3s., the income from which is £31 16s. 4d.—nearly sufficient to maintain and educate two children for a year.

The amount of benevolent allowances has decreased each year somewhat; in 1890, it was £378; in 1891, £363, and this year £353. Your Committee are anxious to relieve the applicants to the utmost of their power, and if they had a larger income at their disposal they could do much more good.

The auditors examined and passed the accounts on July 29th, and expressed themselves as much indebted to my brother-in-law, Mr. George Tawse, for the perfect way in which he had prepared everything for them, making what would otherwise have been a very troublesome business, a pleasant one.

Trusting that next year, through the combined efforts of every member of our profession, I shall be able to give a better account of our position,

I am, Gentlemen,

Yours very faithfully,

A. J. WOODHOUSE,
Treasurer.

The CHAIRMAN said he had now to move that the reports just read be received and adopted.

As he mentioned just now, it had been his lot to preside at the annual meetings of the Benevolent Fund for some few years past, and he had, he thought, on each occasion made something like the same speech—namely, that the expenditure of every penny entrusted to the committee had been carefully watched, and the cases brought before them had been thoroughly investigated by their conscientious and kind-hearted secretary, Mr. Parkinson, who seemed to think nothing whatever of trouble, however great it might be, when he was going into a case. They might take it, therefore, that the fund was administered with the greatest possible care, and with great benefit to their poorer brethren. The details were given in the report, and it would be seen by them that thoroughly good and practical help had been afforded in cases of very great need. He thought, perhaps, the most hopeful part of their proceedings was in regard to the orphans, whom they brought up and fitted for the duties of life, to earn their own living, and often to assist their widowed mothers. With regard to the statement of accounts, that was not quite so satisfactory as they would like. Mr. Woodhouse (treasurer) had explained that the annual income last year had been in advance of that of previous years, but that was owing to increased donations. The

annual subscriptions, had fallen off, which was a matter to be deplored, as was also the fact that there was a decrease in the annual subscriptions, which they looked upon to form the backbone of their success. Although, of course, they must expect some of their old friends to depart from them, still with the increase of the numbers in their profession the places of those who had died ought to be taken by others, and therefore it behoved those interested in the fund to look up their friends and ask them to come forward and support the fund. With those few remarks he begged to move that the reports be received and adopted.

Mr. H. C. QUINBY seconded.

Mr. WOODRUFF asked whether anything had been done in the way of memorialising the members.

Mr. MUMMERY (who acted as secretary) said that a printed circular asking for increased support had been distributed amongst the members that morning.

The proposal to adopt the reports was carried unanimously.

RESIGNATION OF A MEMBER OF THE COMMITTEE

The CHAIRMAN then announced that he regretted to have to report the resignation of Mr. Hutchinson from the Committee of the Benevolent Fund. Mr. Hutchinson tendered his resignation because he felt that, having been on the Committee since the foundation of the Fund, he felt the time had come for his retirement in favour of another member of the Association.

Mr. SMITH TURNER said he begged to propose, "that Mr. Hutchinson receive a very hearty vote of thanks for his very efficient services." Mr. Turner said Mr. Hutchinson had taken a very active interest in the conduct of the affairs of the Benevolent Fund, and his resignation was to be very much regretted.

Mr. TOMES seconded.

On being put to the meeting the resolution was passed with applause.

As a result of the ballot Mr. E. Lloyd Williams was elected to the vacant seat on the Committee.

Mr. QUINBY said he wished to propose a hearty vote of thanks to Mr. Woodhouse (treasurer), and to Mr. Parkinson (secretary) for their continued and successful efforts on behalf of the fund.

Mr. ROGERS seconded Mr. Quinby's proposal, and it was agreed to with enthusiasm.

A vote of thanks to the auditors for their kind services was proposed by Mr. QUINBY and seconded by Mr. HENRY and carried.

Mr. WEST said there was another gentleman to whom they were much indebted, to whom he felt a special vote of thanks was due—Mr. Tawse—who had given the auditors every assistance and drawn up the balance sheet ; seconded by Mr. RYMER and carried.

The CHAIRMAN announced that it was necessary to appoint a member of the committee to sign cheques with the treasurer, Mr. Woodhouse, in place of Mr. Hutchinson, who had hitherto undertaken this duty. On the motion of Mr. BACON, seconded by Mr. SMALE, Mr. Mummery was appointed to sign cheques with the treasurer.

This having completed the business, the meeting was then adjourned.

The meeting of the members, to hear the reading of the papers and to discuss them, was resumed in the Chemical Theatre at 10 o'clock a.m., when the PRESIDENT (Mr. H. C. Quinby) was again in the chair.

The proceedings commenced by Mr. MUMMERY reading a paper "On the Microscopical Appearances of Caries and the Theory of Phagocytosis." This paper, which will be printed in a subsequent number, was plentifully illustrated with lantern slides.

A discussion then took place upon

The Desirability of Extraction of the Six-year-old Molar.

Mr. H. C. QUINBY, in opening the discussion, said : Gentlemen,—Our next business this morning is the consideration of a subject of the greatest interest and importance in the treatment of youthful mouths. The Museum Committee—fortunate in having for its hon. sec. Mr. Geo. Campion, to whom our best thanks are due for his great ability in arrangement, and the vast amount of labour which the carrying out of his plans involved—has succeeded in getting together, what is probably the largest collection of models and appliances to illustrate a special subject, that has ever been seen at any meeting of members of our profession. This subject may be described, generally, as the treatment of irregularities and overcrowding of the human teeth. But the special subject for our discussion this morning—one which is necessarily well represented in this Museum—is the tendency of overcrowding to promote the destructive effects of caries ; and whether it may be justifiable as a

conservative measure, in cases where we see indications of danger to the youthful dentine from this cause, to remove an upper and a lower tooth from each side of the mouth, with a view to the giving of more space to the anterior teeth, permitting them to separate, and, as nearly as possible, isolate themselves, thereby preventing the inception of carious disease in such teeth as have not already been attacked. If such a measure is justifiable, which teeth should be selected for extraction, so as to give the necessary relief, and when would be the best time for the extracting to secure the best results for the future of the mouth? Gentlemen, it is a wide as well as an important subject, and I hope we shall have an instructive discussion. In conclusion, he called upon Dr. Davenport (Paris) to speak upon the subject.

Dr. DAVENPORT, who was very cordially received, said :—

Mr. President and Gentlemen,—The discussion of the question of extraction of the sixth-year molars I have always approached from a general standpoint, leaving out in my wearisome search amidst the darkness and chaos of imperfect organs and imperfect results of individual cases, where, if one were found which seemed to be explained, or explicable, or referable to a principle, the next would very likely contradict it.

The order of the discussion previous to 1887 was from special standpoints, from the result of special cases. No principles had been recognised, and the general conflict of views was only harmonised by the one grand *dogma* that *contact is dangerous*, and upon this altar, upon one profession of faith or another, were offered our sacrifices.

It is deplorable that the *organ of mastication* is so little understood. Men constantly attempt the treatment of cases of irregularity, with their ideas of where the imperfection lies, and of what would constitute perfection, quite reversed, and it is not surprising that disappointment so often results.

The requirements of a certain case may not be easy to decide upon, but treatment attempted without a correct appreciation of the need is unjustifiable and haphazardous.

It was first necessary to demonstrate so obvious a fact as that *lateral contact of the teeth is an essential factor in a normal arch*, and that *good arches cannot be disturbed without injury*. This I felt obliged to do, because dentists did not realise the consequences of broken arches, which even to-day is not enough appreciated.

There is but one *organ of mastication*, but it is the correct rela-

tion of its many component parts to each other that enables the organ to properly perform its function. The absence or malposition of any of these may so change the relations of the whole, that many of the processes of mastication will be interfered with and consequently mastication will be imperfectly performed.

After extraction the roots of the teeth move less than their crowns, and so the relations of the grinding surfaces are disturbed, and much of the interlocking support of the masticatory surface is lost.

When the sixth-year molars are lost, a large amount of masticating surface is at once removed, and a large space is left which requires much diminution in the size of the arch to obliterate.

In proportion as the jaws are unsupported by the remaining teeth, whether by absence of second molars or of more anterior teeth, do they approach each other, the lower incisors biting too deeply upon the upper incisors, perhaps flattening inward the lower or pushing out the upper incisors. Perhaps the relative distance between the jaws will be restored later by the erupting teeth, but in many cases at least, there will remain a permanent too deep overshutting of the incisors, and sometimes the points of the bicuspid become so entangled that they do not articulate well, and spaces between them are held permanently open, although as a rule all spaces close up. The bite may thus be permanently shortened* after the loss of the first molars, I am certain. Why in some few cases the bite is lengthened I will try to show later on.

I know a case, where, before the operation, the incisor teeth, the patient tells me, were far apart when the jaws were closed, whereas now they nearly touch. In this case the removal of all the sixth-year molars had been done late, and the spaces are not yet nearly closed.

Theoretically I do not see how the bite can fail to be shortened by the extraction of the first molars, placed as they are at the bottom of the lower curve and at the greatest convexity of the upper curve, and with the relation of the teeth to the curves of the masticatory surfaces differing in the upper and lower jaws. As the spaces close the result ought to be to straighten the upper curve and to increase the lower curve, and this would mean that

* I find that what I have called a *short bite* is called in England a *deep bite*, and instead of *long bite* the English use *shallow bite*.—I. B. D.

pressure of closing the jaws would be greatest at the front and back ends of the curves.

The bicuspid's are often not well articulated even when fully erupted, and the incisors offer no positive resistance to closure of the jaws ; it follows, then, that the principal force would fall upon the molars, which are placed upon a higher plane of the curve than were the lost ones, and now unsupported by them consequently yield and assume a position in the jaws of relatively greater distance from each other, necessitating a deeper closure of the jaws.

If the molars are not actually lower and the bite actually shortened, I do not see why the incisor should not reassume a normal position after dentition is complete, but it seems to me that this extra overshutting of the upper incisors is almost constant in these cases.

Such a view of shortening the bite is not disproved by the few cases that occur in which the bite is lengthened, for some arches present almost no curve at all, and, reasoning on the same lines, I should not expect the same shortening in a flat jaw as I should in a very curved one. But, be that as it may, if the molars are thrown out of relation, causing the cusps to strike end to end, instead of into their natural grooves and depressions, there will necessarily be a comparative lengthening of the bite until the cusps wear off or find their way again into the depressions.

In the cases of lengthened bite illustrated by Dr. Bracket* and Dr. Howe,† this end-to-end articulation of the teeth is clearly seen, and would necessitate an opening of the bite unless the teeth could drop into a considerably deeper position in the jaws than they had formerly occupied.

After the teeth have fallen together and become somewhat adjusted to each other by accommodating, tipping and rotation, and by the wearing off of prominent points, the patient who may have never known any better condition may feel contented with his lot ; he manages to eat, and he may imagine that he masticates well, and is not conscious of the amount of grinding motion he has lost ; and probably his dentist has no idea of it either, for that, he would need to study the manner of closure of the jaws in every position of masticatory movement, and compare the effect with the same movement of perfect jaws.

* *Cosmos*, 1887, page 571.

† *Cosmos*, 1888, page 662.

Any man who has done that, I believe, will never admit that the function of the organ of mastication has been preserved after extractions of the molars, even though the appearance of the teeth from both without and within in certain rare cases may leave little to desire.

Models No. 15 show the best result I have ever seen after extraction of the first molars. The operation was done at nine years of age. About twelve years after the extraction, and with the wisdom teeth in position, I took nineteen impressions of the teeth in various positions, taking both arches at once to avoid any mistake in the articulation of models, and you may see the result. The front teeth may be extensively used without touching of the back teeth, but they so interfere with the back teeth that but little or none of the rotary movements of mastication are possible, and only a chopping action can be accomplished. One model of this same mouth is mounted on a Bonwill articulator, and by imitating the movements as seen in the actual positions of the plaster casts, the same results are shown. Compare these positions with those of nearly perfect arches as mounted on the articulator, and you will see the vast difference.

I have no casts of the absolute positions of these practically perfect arches, but I have verified them in the mouth, and so far as the eye can detect they are perfectly represented on the articulator when the various movements of the jaws are imitated.

As great tipping and rotation of the teeth after extraction of the first molars are so common and unfortunate features, it is of the greatest importance to determine for the benefit of cases of necessary extraction, if any period or method may be chosen by which these and other evils may be lessened.

I have thought, in common with other practitioners, that the best results were obtainable when the operation had been done near the time of eruption of the second molars, but I must admit that so far the best results I have ever seen were in a case operated upon at nine years of age.

I am inclined to think, in view of the variable results, that the degree of curve of the masticatory surface and the inclination of the axes of the teeth may have a greater determining influence in a given case than does the time at which the operation is done, supposing always that it be during childhood or youth.

The relation to the time of the eruption of the other teeth has not yet received the practical examination which its import-

ance deserves. I therefore await your contribution to the solution of this question with the greatest interest.

One of the great disappointments after loss of the first molars is the frequent failure of the third molars to appear. That this is a serious matter is shown by the facts recorded by Dr. Talbot.* In 763 persons over 26 years of age, observed by him, 342 males and 421 females—42 per cent. of the males and 38 per cent. of the females—possessed no third molars.

I have been criticised for insisting upon the application of knowledge of perfect or good arches in considering the results of treatment of imperfect arches, and it has been claimed that a correct judgment of the results of a case could be reached only by comparison of the jaws before and after extraction.

No source of knowledge can be despised, and I am as much in favour of employing this method of research as anybody can be.

Much may be learned by comparing results with previous conditions, but the value of an opinion by such comparison as to whether improvement or injury has been done, as well as the ability to detect them, must inevitably depend upon the knowledge one possesses of what goes to constitute a perfect denture.

The details of special cases are interesting and important, but no man can be a safe adviser who depends upon knowledge derived simply from special cases, which show every variety with never any two exactly alike.

Furthermore, there are elements of error in the comparison of results before and after extraction. What may appear to be a better result at one period, may prove to be bad later, after the unbalanced forces have had a longer time to exert their influences.

Again, the changes during development are often in the direction of improvement, so that comparison of the results of an extraction with an earlier model is very unreliable, because the model does not at all represent what the condition would have been had the normal developmental processes been allowed to go on.

How many cases we see in which irregularities disappear as development proceeds; a good example is the prominent canines that you have all seen make a place where there seemed little or no room.

**Cosmos*, 1892, p. 354.

The undisputed fact of contraction of the arch after extraction done during childhood and adolescence would be contradicted by comparison of models before and after, as I have often verified, but when we see the teeth tipping inward, and the inner masticating surfaces not touching, we know actual contraction *has* occurred even though the models show expansion.

More positive proof may often be discovered by comparing a case before and after extraction, with the early and late models of a similar case that has been left alone, than there could be by comparing results with the former condition only ; but here also, one needs to be able to detect fine shades of difference in conditions to avoid errors of judgment, and so again do general principles take precedence.

It has been suggested that I have not given enough consideration to all the factors involved in arriving at my conclusions, but after five years' additional observation, and including all the facts which I have been able to gather from the observations of others, I see no reason for any essential modification of my views.

That occasionally a case will result in some improvement I have never denied, but that the vast majority of cases *considered* successful after voluntary extractions of the sixth-year molars, and actually in some ways improved, I sincerely question whether more good than harm has been done.

After seeing the consequences of extraction, variable as they are in different cases, but so woefully lacking in features favourable to the working of the organ of mastication, I recognise so many factors influencing the result that I feel more and more incompetent to advise setting them in motion, as it seems to me only by a mere chance that a happy result may be obtained.

Many teeth, however, must necessarily be lost, for disease, poverty, and neglect will never be fully overcome.

I feel that I have wearied you, but I must take time to beg you not to forget that much that I have said to-day in regard to the functions of the teeth was already said to you twenty-six years ago by one of your members, F. H. Balkwill, L.D.S., R.C.S., in his remarkable paper read before the Odontological Society of Great Britain, "On the best Form and Arrangement of Artificial Teeth for Mastication ;" neither should I neglect reference to the work of Dr. Bonwill, whose ideas of the teeth and jaws are worthy of the highest consideration.

The PRESIDENT said they were all very grateful to Dr. Daven-

port for his contribution to the discussion. The subject had a good many phases, and he now called upon Mr. G. G. Campion, who had so carefully arranged the models, &c., bearing upon the question in their museum, and who would, with the aid of lantern slides, illustrate another view of the subject.

Mr. G. G. CAMPION, who was very warmly greeted, said he thought that one of the chief features of the discussion—one of the most important features—was that it might be approached from one of several different points of view. Dr. Davenport had treated it from one point of view—that was to say, he had spoken of the results of the extraction of different teeth upon the typical or “theoretically” perfect arch. He (Mr. Campion) had approached it from an altogether different standpoint—namely, a purely practical standpoint. They would find in the new books which had been prepared for the use of the School Investigation Committee that carious teeth were classed into two categories—there were carious “savable” teeth, and carious “unsavable” teeth, and amongst these latter there were a large number of six-year-old molars. When it was proposed to illustrate this question of the results of the extraction of the six-year-old molar, it seemed to him that one important point was this: they recognised, that there were amongst the poorer classes, and amongst the higher classes, many who had not recognised the importance of attention to their teeth, that a large number of patients came to them at different times with carious “unsavable” six-year-old molars. It therefore seemed to him that it would be a useful thing to have some models illustrating the results of the extraction of these teeth at different times, so that they might try and find out under what conditions, and at what age it was best to remove those carious unsavable molars in order to produce the best possible results in after years. That was the idea with which they set out when they started the idea of that section of the museum, and it was from that point of view entirely—or almost entirely—that he had approached it, and it was to illustrate that point that the slides which he was going to show, bore. He proposed to show them photographs of cases, in some of which both upper and lower molars had been removed, while in others only the upper or the lower had been extracted. He would also tell them the ages—or the approximate ages—at which the molars in those particular photographs were removed. What he thought they would notice would be this—that where the lower molar had been removed alone, and the upper left,

the result of the occlusion was very bad ; but that where both upper and lower molars had been taken out the result was very much better. That, he thought, was one of the practical conclusions which might be drawn broadly from the models which had been collected.

Mr. Campion then exhibited lantern slides of the models he had taken while investigating the subject. Amongst these he showed :—

(1) A model showing the second permanent molar tilted before the extraction of the first. He remarked that it was impossible to generalise upon results of extraction of first permanent molar without having the models before the extraction was begun.

(2) Model showing a good result accruing from extraction of the second bicuspid in the upper, and the first molar in the lower.

(3) A case where both upper and lower molars had been extracted at the age of eleven years and ten months. The models were taken eighteen months to two years after extraction, and showed on the whole a good result. The second permanent molars had moved forward and tilted slightly, the bicuspid having moved back and spaced.

(4) A model of a mouth where all the first permanent molars had been removed except the right upper one. In this case where both had been removed, viz., the left upper and lower, the space had nearly closed in, while on the right hand side the space was widely open. The second permanent molar in the lower on that side had slightly tilted. Extraction was performed on this patient at twelve to thirteen.

(5) A model showing upper and lower bicuspid not articulating, the front teeth meeting edge to edge. The second molars had tilted forward, so that the buccal cusp only was articulating with its opponent. This model was shown as an example of a case where casts should have been taken previous to extraction.

(6) In this case the upper and lower molars had been extracted at twelve. The lower second molars showed no tilting. The upper molar had come forward, and was articulating well with the lower.

Mr. SMITH TURNER said he would like to say a few words in reference to the subject before them, and also in reference to the museum. It seemed to him that there was what was called "a typical dental arch," but the chance of seeing one was very limited indeed. The symmetrical arrangement of the human body

together was something of an uncertainty. There were two halves to the human body, and the two halves very seldom showed the similarity which was generally supposed to exist. But when they considered the case of the teeth, they had to consider that they had a large number of chances against regularity, for there were thirty-two teeth and each of those teeth might be deranged in several different ways, so that the chances were in favour of disarrangement. If they looked at the models in the museum they would be very much confirmed in that opinion. That museum seemed to him to be the beginning of a very excellent collection for their instruction, and it was because he thought so that he ventured to speak on a certain point. It had been promised that many of those models and specimens should be returned immediately to those who sent them. He thought that when the promise was made Mr. Campion had no idea of the work that lay before him, nor had they any idea of what they would see when they came there. He (Mr. Turner) thought they ought to ask those who had sent those specimens to have a little patience before they were returned, because he believed they had to be worked at for some time yet.

Mr. CUNNINGHAM said that he felt a considerable amount of difficulty in speaking upon this question, more especially because he was a strong advocate of the views held by Dr. Davenport, which he felt were not yet thoroughly understood or appreciated by dental practitioners as necessarily underlying any exhaustive discussion of the present problem. A thorough consideration of these views would demand more time than could be spared in a general debate, and he therefore craved their indulgence if his statements were sometimes lacking in clearness or seemed somewhat foreign to the subject matter of this debate. The extraction of the six-year-old molar was not by any manner of means a new question. It had been discussed on all manner of occasions in dental societies, both at home and abroad; and he felt that, if mere discussion could have brought about a more complete and accurate determination of the right method to be adopted on this important question, it would have been solved long ago. A correct solution can only be attained after the collection of a large series of models, such as exhibited in our present museum, showing the comparative results of extractions of not only first molars but bicuspidis at different periods, which necessarily means a collective investigation extending over a period of

several years. As his series of preparations in the present museum proved, he had devoted a very considerable time to the study of this question, and at any rate he had at least learnt the danger and the frequency of conclusions based on insufficient data.

They had had thrown upon the screen to-day excellent photographs showing the results of past extraction, but those results could never be rightly comprehended unless they could obtain models of the mouth in its original state, which could not now be done. Something may be done, however, to achieve the impossible by means of a better comprehension of the normal or typical dental armature, not only because of its value as a standard of comparison, but also from the light with which it floods the otherwise inexplicable position of teeth after extraction of their neighbours. He had learnt more from Dr. Davenport on this subject than from any other writer, and therefore he desired to pay that tribute to him as being only right and just.

In the text books which treat of dental surgery, you will find that its applications are always regarded from the point of view that the individual tooth is the organism to which our treatment must be directed. Such a view facilitates the discussion and the consideration of the details of operative treatment, but it fails to supply any general principles which can guide the selection and the application of these details to the complex problems which occur in every-day practice. For, after all, what is the value of a single tooth standing alone and by itself in the mouth? It is worse than useless; but, surrounded by its fellows and articulating with its antagonists, it is a tangible entity in the true dental organism.

In approaching this question of the desirability of the extraction of the six-year-old molar, the maintenance or improvement of function is the cardinal principle which must guide us. In order to do so, it is evident that the individual tooth must not be regarded as the unit, but as a mere factor contributing to, or detracting from, the efficiency of the true functional unit: the denture as a whole. Leaving out of consideration the importance of the teeth as a phonetic apparatus in the production of speech, the main function of the teeth is their efficient action as the organ of mastication. No tooth contributes so much to the maintenance of this function as the six-year-old molar; no tooth is more frequently lost prematurely, with the result that the remaining molars lose so much of their grinding capacity that they can only rank as incisors in functional value. In order to rightly appreciate the

efficiency of the dental organism as a masticating apparatus, we must establish a standard with which to compare it: this standard is to be found in such a denture as he now exhibited as the normal type. The occlusion of all the teeth was not only good from an external point of view, but its efficiency as a masticating organ was perfect. There was only one way in which they could examine such a model thoroughly, and that was by dividing it in the median line. This method of examination, known as the split model, they owed to Dr. Davenport.

Whatever might be the outcome of our discussion, he desired to say that he attached much importance to the stress laid by Mr. Champion on the necessity of classifying the six-year-old molars into two great divisions—those that were 'savable and those that were unsavable—when discussing the advisability of extraction, if only because they were going to increase the former class where such extraction was unnecessary, and to diminish the latter where its desirability was an obvious, but none the less, painful necessity. In discussing such a question they must look to the future, and he thought the time was coming when, just as they were discussing to-day the desirability of extraction of the six-year-old molars, they would be debating the relative advantages of extraction of the first or second bicuspid.

It was evident from a large number of models exhibited in the museum, that radical treatment had been too often applied without regard to the governing principle as to function, thus exposing the patient to the results of what he would describe as *indiscriminate extraction*. These results are sufficiently serious at times as to permanently cripple the proper functional exercise of the complete dental organism. He thought that they might learn something of the wild recklessness with which the forceps had been used by a study of the models now shown in the museum.

He thought that we might lay down the following axioms:—

Firstly.—The object being to maintain or to restore functional integrity, the unit to be considered is not the individual tooth or teeth, but the denture as a whole.

Secondly.—A full complement of teeth is not absolutely essential to the efficient function of this dental organism.

Thirdly.—The individual teeth are not all equally important in the exercise of the function for which this dental organism is adapted.

A careful consideration of the relations of the antagonising

teeth will at once convince you that the smallest fractional part of the denture which we can possibly entertain in any discussion as to the appropriate radical treatment of the normal dental organism, is either a pair of teeth or the set of four. It is only (1) where the relation of the teeth or jaws is *asymmetrical*, or (2), if *symmetrical* where some apparatus will be applied for effectually closing the space, or (3) where the age of the patient precludes the reasonable anticipation of any subsequent rectification of the loss, that the single tooth can be regarded as the fractional unit where isolated radical treatment is applicable.

There are many considerations to be taken into account in determining whether it would not be better to sacrifice some other tooth in preference to the six-year-old molar. While it is hardly possible to lay down any rule of universal application, he ventured to submit the following conclusions. If the six-year-old molars are badly decayed, their removal would be indicated. If they were sound or capable of easily being made sound, that is, affected by caries of the second degree, and also the bicuspid, there might be no greater reason for their removal than either of the bicuspid. In fact, sound molars in the jaw are of more value in a masticatory organ than equally sound bicuspid. Nor should it be forgotten that by the period of life at which you have usually to decide the question, the first molars have always passed "between the age of five and twelve years—a period of especial danger to dental structures. This period of life is one liable to illnesses perverting the saliva and promoting caries; not only is the sixth-year molar unlucky in having to form its crown during a time when lack of nutrition may be arresting the enamel formation, but the age is also one at which the child does not realise the importance of its teeth, and does not generally take proper care of them." (Underwood, *Cosmos*, Sept., 1887). Professor Stack compares the first molars to veterans, and the bicuspid to raw recruits.

Narrowing the decision to the bicuspid, there can be no general reason given for selecting one in preference to the other for appearance's sake. The two teeth are so nearly alike that they might change places without detection, and therefore, if the mechanical difficulties in treating an irregularity were lessened by the choice of one, that would be sufficient to determine the course. The third molars may in many cases, from their weak structure and their comparatively slight functional value be extracted, to the economic advantage of the patient without in any way impairing

the adequate function of the complete dental organism. (Illustrative case.) When any doubt exists in your mind, do not be hasty in coming to a decision, but seek other advice by discussing the *pro* and the *con* with some more experienced practitioner.

They now came to the question as to the best time to perform the operation of symmetrical extraction. Some practitioners advise the extraction at a specific age. It would seem better not to be governed by any strict rule as to age, but to be guided by the development of the teeth, which varies considerably within certain limits. Even then a diversity of opinion occurs, as some are guided by the first appearance of the second molar through the gum, while others advocate waiting till it is completely erupted. So far as his experience went, he was inclined to endorse the latter view, since thereby we choose the time when the gain, so far as space is concerned, is greatest; and he believed there is nothing to be gained by waiting after the second molars are in position, unless it be to allow the alveolar process to become thoroughly formed and solidified round them.

It is also maintained that, if the first four molars must be taken out, the extraction of the lower teeth should precede that of the upper by about a year, because of the greater density of the bone of the lower jaw.

Another view was that the first molars should be extracted some time previous to the appearance of the second molars. He had not been an advocate of that view himself, but was bound to admit that some of the models showing that symmetrical extraction had taken place at the ninth or tenth year had resulted in good occlusion without any, or with comparatively little, tilting.

While it is true that the subsequent movement of the teeth which results from judiciously applied symmetrical extraction is occasionally such that even an expert may be in doubt as to whether or not the first molars have ever been extracted, more frequently it results in great loss of grinding capacity by tilting and rotation. The vertical or angular implantation of the teeth in their sockets is an important factor in determining the subsequent movement of the teeth. Models of symmetrical extraction performed on edge-to-edge biting jaws show much less tilting than those where the more usual angular implantation exists.

It is often assumed that the advisability of symmetrical extraction is generally admitted and recognised. That may be so, but he would have no difficulty in proving to any candid investigator

that if it is recognised it is not applied. He argued, therefore, for a better and more thorough application of such conclusions as have been accepted, while retaining a very open mind as to the best time for its application, and for contributions to further and more exact knowledge on the subject by the collection of models taken both immediately before the operation and several years subsequently.

In conclusion, he would point out what excellent opportunities occurred for our acquiring a real knowledge of this question. Owing to the shocking condition of the teeth of poor children in our public institutions, often the only way in which a reasonably efficient denture could be ensured them would be by the symmetrical extraction of the six-year-old molars. Here results might be obtained which would be impossible in private practice. Our reward would be material on which to base conclusions on a problem which would not be solved that day, and which we should not let rest until we have mastered; while theirs, which is really that of the whole community, would be a recognition of the totally unnecessary pain and often life-long injury inflicted on the young by gross neglect of preventable conditions which leads to this, as a rule, premature loss of the six-year-old molar.

Mr. TOMES said that in discussions of that kind he often appeared as a sort of "free lance" running a-tilt against what had been said by other people, but he could only say in excuse that one often attacked a question with apparently more harshness than one would have done if there had been more leisure to argue the question in detail. He admired immensely the methods of setting up casts for the better examining of articulations which Dr. Davenport had introduced; they were an immense gain. He must, however, join issue with him when he spoke of the admiration he felt for Dr. Bonwill's views as to the principles underlying the form of the jaws. He himself had the greatest admiration for Dr. Bonwill as an inventor, but he had not the slightest admiration for the theoretical views he had advanced. He had carefully gone into them, and lest his own mathematical knowledge rendered him incapable of judging of an attempt to represent them by mathematical figures, he had submitted them to an eminent and well-known mathematician, who characterised the diagrams as of no more value than the efforts of the "circle squarers." Although, no doubt, there was such a thing as a perfectly typical arch, one would but rarely see one. The speakers seemed to have

lost sight of one important thing, and that was that the jaws for some unknown reason were more readily affected by causes which tend to stunt them than the teeth, this stunting of the jaws being inherited, and extending to whole races. Take, for example, a short-muzzled race of dogs, in which it would often be found that the teeth were immensely deranged as regarded occlusion, and also very much crowded, showing that its jaws had varied very much faster than its teeth. He thought that if early extraction had been resorted to in some cases of short-muzzled dogs, that the occlusion of their teeth, as well as their regularity, would have greatly improved. In regard to the dental arch, it was true that it was a form very strong to resist a blow from the front, but that was not the direction in which the forces of mastication were exerted. It seemed to him that when people talked about destroying the strength of the arch by interfering with one of its standing elements, removing its keystone, &c., they were talking somewhat beside the mark.

There were a good many other points which it was impossible for him to touch upon. He could not follow Dr. Davenport in what he said about the results which necessarily followed if they took out the six-year-old molar on account of the curvature of the arch in the horizontal plane. Then again, a little further on they were told that a great many of those occlusions were very bad because they only gave points of contact, thereby giving an efficient "slicing" action, but not an efficient "grinding" action. He was prepared to admit that they were far from perfection, but at the same time, a denture that would probably be somewhat inefficient for the prehistoric man might, nevertheless, be fairly efficient for a man of the present day, when food was so elaborately prepared. In regard to the question of extraction *versus* treatment by plates, he must say he had never seen cases where there was very considerable irregularity which had been successfully treated by means of plates, in which the ultimate occlusion was entirely satisfactory; the teeth were rendered regular, but the "bite" was very apt to be imperfect. He himself used to be a very strong advocate for the extraction of the six-year-old molars, but he had now changed his views, and did not now extract a six-year-old molar if there was any possibility of its preservation for any great number of years. He would rather take out a sound bicuspid than a somewhat damaged six-year-old molar. But of course, it was a question of the degree of damage or of imperfect development.

Mr. C. M. WALLACE pointed out that theoretically the six-year-old molar should be saved, but that tooth was erupted when the mouth was in a very unfit state to receive it. He agreed with Dr. Davenport that if a typical arch was to be obtained it was necessary to preserve the six-old-molar, and he thought it was their duty to endeavour to save it as far as possible.

Mr. W. B. PEARSALL said that Mr. Campion had shown them in a practical way how that difficult subject was to be approached. Owing partly to his (Mr. Pearsall's) initiative they had now a very well-organised museum, where they could verify for themselves the statements of the different speakers. Now, there was no doubt in his mind, from many years' observation, that the man who extracted a six-year-old molar, which was sound, was decidedly at fault. If they took the trouble to examine the dentition of children from six to eight years of age, they would find that the whole pressure of mastication was borne by the six-year-old molar. Now, the reason that tooth decayed arose very often from being in contact with another tooth that might have been neglected, and the general tendency was not to remove the cause of the decay, but the six-year-old molar. The conflicting points in such a subject must render it impossible for them all to come to the same conclusion, and he thought that if they took only the theoretical views which had been advocated that they would fall into a pitfall. He himself thought it was a most unwise thing to extract a sound six-year-old molar, when a bicuspid could be sacrificed with far more advantage, because it relieved the pressure where it was most wanted. He considered it would be a very good thing if the discussion could be carried on next year at Birmingham, and in the meantime let them confine themselves to a thorough elucidation of the subject. They must always remember they had a great many people with an abnormal condition of the mouth, and they could not in such cases expect to produce an ideal condition of the mouth. All they could do was to give the patient a serviceable set of teeth, so as to enable him to masticate and speak in a thoroughly efficient manner.

Mr. MATHESON said, what they had to consider was the question, whether by removing teeth which could not themselves be called unsavable they might save in the end a larger number than would be the case if extraction was not resorted to. They had to put aside, as far as they could, the question of regularity or irregularity—the question was mainly one of decay, and how they could best prevent it.

The PRESIDENT: I think the question of irregularity is included in the discussion.

Mr. MATHESON, continuing, said then he would approach it from the point of view whether it *was* desirable in many cases to remove symmetrically four teeth, even when such teeth, individually considered, it might be quite possible to fill and save—at all events for a time. That was to say, that teeth which were in themselves savable might be removed with great advantage in order, ultimately, to save a larger number. Which were the best teeth to remove, and at what age they should be removed—these were points requiring careful consideration. It was no wonder that some diffidence was shown in approaching the subject, because, as had been pointed out, no two cases were alike. At the same time they could lay down some general rules. No doubt the reason why the six-year-old molar had hitherto been so very widely and constantly chosen for extraction was, because it was the one in which there was usually the largest amount of decay. But he was very glad to hear Mr. C. S. Tomes' remarks in regard to the wisdom of, in many cases, extracting the bicuspid instead of the molars. Many practitioners had got into the habit of taking out the molars without considering whether another tooth might not be better. In his own practice, where he found a molar and a second bicuspid equally carious, he generally extracted the second bicuspid rather than the molar. They must never forget that the first molar was the principal grinding tooth, and if they extracted before the other molars came fairly in their places they never got the same amount of power. On the other hand it had been pointed out that after extraction the remaining teeth came together again so that there were no spaces left between them. In his opinion they did not want the teeth to come absolutely close together again. It was quite true that if they had a very slight space they got a condition worse than before, owing to the lodgment of food in the spaces, but in many cases where the molars were removed they did get a space between the second molar and the bicuspid which was advantageous. In some cases he believed it to be distinctly an advantage to remove the second molars rather than any other teeth. Then in regard to the question of age, it was in almost all cases the best practice to defer the extraction of teeth until the eruption of the twelve-year-old molar. The great advantage of that course was, that they were able to preserve the six-year-old molar during the time when its use was of the greatest

importance, and moreover, when the second molars had come through one could better see whether they were teeth which were likely to last.

Mr. MUNDELL said he had recently examined with a great amount of interest the teeth of about 160 boys in a school in Devonshire, and it bore particularly upon the question as to the removal of the six-year-old molars or bicuspid teeth. He must say that in the majority of instances—in quite 80 per cent.—that the boys would undoubtedly have benefited by the early extraction of the six-year-old molar.

Mr. ROSE (Guernsey) said they were all animated by the desire of doing the best they could for their patients; the only question was what was the best thing to do. They all knew perfectly well that the molar was a much more valuable tooth than the bicuspid. It was of more service, and if it could be saved that was the tooth to preserve. Secondly, they must remember that at an early age they could not form a definite idea of what the future condition of the mouth would be. At that age the mouth was more or less in an abnormal condition, and as with increasing age there might be an improvement in the conditions, they must take a general view of the mouth and judge by experience what kind of teeth the permanent teeth were likely to develop into. Their treatment must vary according to the condition of the teeth. He should never think of extracting the six-year-old molar, if it were desirable to extract that tooth, until the twelve-year-old molar was beginning to show itself a very considerable way above the surface of the gum, for the simple reason that to deprive a child of a six-year-old molar before it had other molars to take its place would be depriving the child of an advantage for its health that nature intended it to possess. Rather than extract the six-year-old molar before the twelve-year-old molar was properly in its place he would fill the six-year-old molar even if it were only for a few months. It must be preserved until they saw what the condition of the mouth would be when the twelve-year-old molar had erupted. Now, assuming that they had got an overcrowded arch, that the canines were completely out of position, and that the six-year-old molars were decayed, the question was, how much were they decayed, and why were they decayed? He himself did not consider that a fairly large amount of decay between the cusps was at all a sufficient reason to warrant their extracting a tooth which ought

to be valuable in after life. He therefore should sum up his remarks with this one sentence, which actuated the whole of his treatment in this matter : If the six-year-old molars were not so much decayed as to present a reasonable amount of guarantee that those teeth were likely to preserve their usefulness until adult manhood or womanhood, he should say extract the first bicuspid. If, on the other hand, there was not that guarantee that the molars would last, then by all means extract them.

Mr. STORER BENNETT said he thought they had heard on both sides such an admirable defence of the two propositions, as to whether they should or should not remove the first molar or the second bicuspid, and so many reasons had been advanced on both sides in favour of the two views, that for his part he did not feel competent in any way to say decisively which was the correct or incorrect view. They must always remember that they could not lay down any hard-and-fast rule, but they must always be guided by the conditions of the particular case they had to treat. And so in regard to Dr. Davenport's proposition, he (Mr. Bennett) thought it was only fair to remember that, although the typical arch was a thing they all aimed at in principle, still they must not abandon a case of irregularity because they could not produce a typical arch, but do the best they could under the circumstances. He did not think it fair to come to any conclusion from models which had been taken a considerable time after the extraction of the teeth. At the Dental Hospital in London, they had a rule that a model of the mouth must be taken before the treatment was commenced, and always retained until the treatment was complete. In that way they were enabled to watch the progress of the case from the commencement to the end. He thought the six-year-old molar should not be extracted until the twelve-year-old molar had come through, because in his opinion injury was likely to occur to the other teeth through the whole force of the act of mastication being put upon them, before the twelve-year-old molar was in a position to render them any assistance.

Mr. H. C. QUINBY, in bringing the discussion to a close, said : Gentlemen,—The subject we have been discussing to-day has been one of the chief studies of my professional life. I saw very early that, to obtain anything like a satisfactory result in dental practice, we must fight the *earliest* indications of disease—that, as far as possible, we must endeavour to *prevent* disease. It was

very soon plainly evident to me, as it is in time to every practitioner, that our best efforts to preserve the bicuspids, by fillings solely, were too often failures, but if these teeth happened to be isolated, by even the smallest spaces, so that they could be kept clean without too much effort, the fillings would stand. Better still, it seemed that if the isolation could be brought about before the inception of caries, there was rarely any need for fillings; but in those days it was the almost universal practice to extract painful teeth, and, as we all know very well, it has long been a peculiarity of the six-year molars to assume a painful condition as early in life as circumstances would permit. I very rarely had a youthful patient brought to me with the proper number of these teeth in the mouth. It was, therefore, natural enough that, having once commenced observing the effect of isolation, and having frequent opportunities to compare the result of isolation on the one side of the mouth, and close contact on the other, because in so many cases some of the six-year molars had been ruthlessly taken away at varying youthful ages, the idea should finally occur to me that, in this sense, it was a gain to the mouth to have these teeth removed. On the other hand, the extraction of the six-year molars, simply for the relief of pain—one to-day, and another (perhaps on the opposite side of the mouth) next year—was a cause of serious complications in articulation, sometimes affecting even the symmetrical arrangement of the incisors, when, a little later in life, the forward pressure of erupting wisdom teeth caused them to be pushed to one side. It was thus that observation led, generally, to these conclusions:—

(1) That extraction of the six-year molars may save the bicuspids from decay by giving them space to permit isolation.

(2) That by extracting these teeth in haphazard succession, without consideration for what may be the future effect upon the articulation of the other teeth, a great deal of harm may be done to the appearance of the mouth.

(3) That the extraction of these teeth before there are other *sufficient* grinding teeth is a serious loss to the patient in the proper mastication of the food.

(4) That it is possible in all cases to nurse these teeth and keep them in at least a fair condition of usefulness and freedom from pain, until the eruption of the twelve-year molars.

(5) That the period of greatest danger to the teeth, from caries, is between the ages of twelve and sixteen, while the teeth are

immature, the youth is growing rapidly, and therefore, not too strong, and while important constitutional changes are in progress.

(6) That if all the six-year molars are taken out at one time, the beneficial effect is quickly felt in all the bicuspid, and in the other anterior teeth.

(7) That the relief being given simultaneously on both sides of the mouth, there is uniform separation without disturbing the symmetrical arrangement of the front teeth.

(8) That there is no greater loss of masticating surface from the extraction of two antagonising teeth than there is from the loss of one of them.

(9) That the best time for the extraction of the six-year molars is immediately after the twelve-year molars are fully erupted, so as to be in complete occlusion; because this usually (*though not always*) occurs when the patient is about twelve years of age, that is, before the period of greatest danger to the teeth from decay; there are then plenty of good masticators, so the loss of these will not be seriously felt; the articulating surfaces of the twelve-year molars, when they are in occlusion, give a natural support to these teeth, and assistance to prevent tipping and turning in their sockets; and, what is of very considerable importance, the jaws have then gained all the growth they are likely to attain for two or three years at least, or until the wisdom teeth have become more developed.

(10) That, as the twelve-year molars cannot be relied on to appear *in all cases at a fixed time* (having seen them myself in one instance as early as the ninth year, and in several cases not earlier than the fifteenth year), and as experience appears to prove that the greatest benefits to the denture from the extraction of the six-year molars is gained by waiting for the full eruption of the twelve-year molars, therefore the best time for such extractions depends upon *development*, and frequent examinations of the mouth are indispensably necessary to determine it.

It is, perhaps, twenty years since I thought out the greater part of these conclusions, though some of them are of much more recent date, but for at least that number of years I have conscientiously acted upon my convictions. You are not to suppose for one moment that I mean to imply by this that I have extracted all the six-year molars I have seen in youthful mouths, in all those years. There cannot be any hard-and-fast rules in dental practice, every case must be judged on its own merits, although the dental

history of the family may well be called to our assistance in forming a decision. But what I mean by saying I have acted conscientiously on my convictions is this : if I have decided that the six-year molars, or four bicuspidis must come out in order to save a satisfactory denture for a young patient, and if the parents (or the patient) refuse to accept my decision, I decline to take any further responsibility in the case. I consider that a professional man is bound to act according to his own judgment. Patients do not come to us to tell us what we are to do, but rather to ask our advice and act upon it if they have confidence in us, or else go to some one whom they can trust.

What we all aim at is the preservation of the greatest number of teeth in the soundest possible condition. We have all of us seen cases—I hope we shall see many more—in which we felt, instinctively, that we could trust to the preservation of all the teeth that nature had planted in the mouth, and I am certain that the most of us have seen the the exact reverse of this, where, even at the commencement of the teens, there was not *one* sound tooth in the mouth, and something closely approaching to that condition is sadly too common. There is a wide range between these two extremes, and in very many cases there can be no hope of the ultimate preservation of all the teeth. We must use our best judgment to determine in how many of these cases the extraction of molars, or bicuspidis, will aid our efforts, having always in view the changes which may reasonably be expected to take place in the condition of the teeth as they approach maturity, and adapting our treatment to that future condition quite as much as to the present.

I have no sympathy at all with that theory of practice which says we must not interfere with Nature's plans, nor with that timid treatment which would wait until a tooth is utterly broken down, involving its neighbours in its ruin, and then extract it—such treatment is simply weakness unworthy of manhood, to say nothing of professional judgment. There is a time to act, and we should seize that moment to try and *prevent* mischief to the objects of our care, rather than to wait until cure is hopeless, and then try to cure.

One of the advantages of age is that one has lived long enough to see the results of our work. I have had a long professional life, and have seen many good results from this treatment, but I have not found that so much bad articulation has resulted from

the extraction of the six-year molars as to discourage and deter me from advising this operation when I think it necessary. Do we see so many cases of thirty-two teeth in the mouth, and a perfect articulation, that we need fear for the ability of our patients to manage the mastication of their food with twenty-eight? I only wish we might all of us succeed in preserving as many for our patients until they reach a reasonable age.

[At the conclusion of Mr. Quinby's remarks the meeting adjourned for lunch.]

On re-assembling after lunch Mr. Brunton read his paper "On some Practical Details of Operative Dental Surgery and Mechanics."

Mr. CUNNINGHAM, at the conclusion of the discussion on this paper, read the Second Report of the School Committee, which, with the discussion which took place, will appear in our next number.

Mr. SIMMS next read a paper on "The Rotation of Twisted Upper Incisors," which will appear as an Original Communication. A discussion followed, and at its conclusion the business meeting terminated.

THE ANNUAL DINNER.

The annual dinner of the Members of the Association took place on Friday, August the 12th, in the banquetting hall at the Grand Hotel, the members mustering in strong force. Amongst the guests present were Alderman Robinson, Rev. James M'Dougall, Professors Dreschfeld, W. A. Copinger, Drs. Brooke, Coghlan, Dixon Mann, A. Donald, Edge, Harris, Hutton, Hardie, Harring, Emerys-Jones, W. Lauder, Leech, Moritz, Railton, Walter, all of Manchester, Drs. Tsigmondy (Vienna), Davenport (Paris), Delepiné (Paris). Messrs. G. M. C. Howarth, J.P., E. Lund, F.R.C.S., Thorburn, W. Whitehead, A. Wilson, F.R.C.S. (all of Manchester), G. Rowell, F.R.C.S., Dr. F. Hewitt (London), Pridgin Teale, F.R.C.S. (Leeds), Rushton Parker, F.R.C.S. (Liverpool).

During the dinner Messrs. Forsyth Brothers' band played a choice selection of instrumental music, and the after-dinner proceedings were pleasantly interspersed by songs, duetts, &c., by the following artistes, viz., Miss Mabel Berry, Miss F. Daly, Mr. Seymour Jackson, and Mr. A. S. Kinnell, and their efforts met with the unstinted approbation which they so well deserved.

Whilst the members were at dinner, Mrs. H. C. Quinby, the wife of

the President, held a reception for the wives and lady friends of those members who had attended the meeting of the British Dental Association. During the course of the evening Mr. H. Planck, on behalf of the Ladies' Entertainment Committee, and numerous friends, in a few well-chosen words, presented Mrs. Quinby with a handsome bouquet in a silver holder bearing an appropriate inscription in commemoration of the annual meeting in Manchester of the British Dental Association. All the ladies also who attended the reception were presented with a spray of flowers for their dresses by Mr. F. W. Minshall and Mr. I. Renshaw on behalf of the Committee. Mrs. Quinby, who was deeply touched by the kindness of those who made the presentation, returned her thanks for the gift in a few and well chosen sentences.

At the conclusion of the dinner the PRESIDENT (H. C. Quinby, Esq.) read a telegram he had received from Mr. Breward Neale, the President-elect, announcing with regret his inability to be present at the dinner that evening. He also announced that the Dean of Manchester, the Principal and the Dean of Owens College, the Mayors of Manchester and Salford, Members of Parliament and other gentlemen had written in a similar strain.

Continuing he said :—I have another matter to refer to, and that is a very graceful act on the part of our Manchester friends, who have presented my wife with a bouquet and silver holder. I have only to say "I thank you."

The President then proposed the toast of "The Queen." In doing so, he said: Most of you are not aware that I am not legally a British subject, and it might almost appear to be an act of presumption for me to propose the toast, which my position here makes it my pleasing duty to propose. But I think it is quite possible that, as an alien, one can best see how absolutely impartial is the administration of the executive power of this great nation. The person, the property, the rights and the liberties of all who dwell within its boundaries are equally respected and protected, whether the recipient of these benefits be the wealthiest and most powerful of its nation-born subjects, or the poorest alien who seeks its shelter. As a subject of a great republic, I admire the perfect machinery of the most perfect form of government of the people, by the people, that the world can show. And above all I admire the Royal Lady who has so long and so worthily been its loved and honoured head—"The Queen"—God bless her.

The toast was drunk with the utmost enthusiasm.

The next toast on the list was that of "the Army, Navy and Reserve Forces," which was proposed by the President, who said: It has sometimes happened that complaints have been made in times of pressing need of an inefficiency in matters relating to the equipment of these services, but we never hear of anything like inefficiency of the officers and men who constitute the organised forces. Their

sister services have for many centuries borne under the name of Great Britain, an honoured and respected name in every quarter of the globe. In this great manufacturing district, it becomes us well to think how much we owe to these services which have protected our trade, and enabled our enterprising manufacturers and merchants to extend it in an ever increasing circle, which reaches every shore and penetrates to the centre of every continent. And, I am sure you will heartily join in drinking long life and unceasing honours to the "Military, the Naval and the Reserve Services of Great Britain."

This was responded to by Lieutenant-Colonel Rogers, a member of the British Dental Association, who said the Navy was undoubtedly our first line of defence around our little island, and that it is was absolutely necessary they should spare nothing to make it what it always has been—the first navy in the world. As regards the Army, he did not believe in the "short service" system, as it did not seem possible to make a thorough and well disciplined soldier in that time. It was also satisfactory to see that a stir was being made to give government civil appointments to good service and good conduct men who have retired from the army. Of the auxiliary forces but few words were necessary, for their efficiency and soldier-like manner had been well shown during the recent volunteer manoeuvres at Aldershot, and he felt sure that should the time ever arise that they would be called upon to defend their hearths and homes, they would be proud and willing to shed their blood for England, home and beauty.

Mr. RUSHTON PARKER, F.R.C.S., rose to propose the principal toast of the evening, namely, the "British Dental Association." In doing so he said: Mr. President and gentlemen, I feel it a great honour to be the guest of the British Dental Association here this evening, and I feel it is also a great honour to be called upon to propose the toast of this Association. In doing so it is extremely difficult to know what to say, even when you are on your own ground, whereas, I am in this instance a comparative outsider. And the difficulty is to know in what fashion to treat it. If I could, I would treat it in a humorous fashion, but the humours of dentistry are not easily expressed on an occasion like this. However, I wish sincerely to express my hearty desire for the prosperity of this Association. My own association with dentistry is somewhat varied. As a teacher of surgery, I am to a certain extent engaged in teaching dental students, what they may think perhaps, a very small and unimportant part of their future duties, still, the most enthusiastic dressers that I have had have been dental students, who are under no obligation whatever to take that office, but do it for the pure love of the subject. They voluntarily ask to be taken on, and that is a fact which may be of interest to you. Then, perhaps, I may add that ever since a very early period of my own life I have been intimately associated with dentists as private friends, and

I am in common with a great number of other members of the public, under the deepest personal obligation to them for services rendered. I can speak from personal recollections, and also from professional criticism of the value of their services to myself and others. I have heard it said by persons, who need not be further particularised, that the duties of dentists are purely mechanical. Well, suppose they are purely mechanical, I consider that good mechanical operation is just as good as a good literary effort. I do not think any worse of a man for his being a mechanic, in fact I respect him the more. Well, then, having been personally associated with dentists as private friends, perhaps I may be allowed to add, I feel myself honoured in being a personal friend of our President—Mr. Quinby, whom to know is to respect both personally and socially. I therefore think that as a member of the medical profession, I consider the dental profession is a form of collegueship; and by the pleasure and satisfaction I have had in attending on this, and other previous occasions, we have been comrades as well as colleagues and professional friends. I therefore beg to ask you to drink the health of the "Dental Association" with every possible honour.

Mr. SMITH TURNER who, on rising to respond on behalf of the Society, was received with loud cheers, said: Mr. President and gentlemen, I have listened with pleasure to the speech which has just been made on behalf of the "British Dental Association," and I am bound to say that I have heard some very excellent expressions of regard towards our institution. I suppose this gathering will back me up when I say that we dentists are a very self-satisfied people. We have a great opinion of ourselves and of what we can do, and we have great hopes of the future in regard to what we are going to do. In regard to what we can do, I doubt very much if there be a body of professional men who would have the temerity to issue a large number of invitations to their patients to come and dine with them; I should like to see a body of professional men—a body of general practitioners—who would invite a large number of people who are dependent upon their skill to dine with them and test their digestion, if they had been suffering from it. Now we can afford to issue our invitations to our professional friends and our lay friends, and so well satisfied are we, that we are not afraid to ask them to dine with us and expect them to eat a good dinner. Now as the proof of the pudding is in the eating of it, I suppose the proof of dentistry is the way in which we can eat. However, our object is to make the public as satisfied with us as we are with ourselves. And our object is to make the medical profession particularly as satisfied with us, as we are with ourselves. And that is why I presume to address you on the present occasion. With regard to the public, well, we have been striving during the last thirteen or fourteen years, especially since this British

Dental Association has been formed, to rear up on their behalf a body of men who will serve them faithfully, skilfully, and in a professional manner. The public is slow to discern, it always has been and I suppose it always will be slow to discern the difference between the professional man who brings to them only his skill and education to help them in their time of need, and the man to whom they go perhaps for a freak or perhaps for some temporary necessity, to purchase something which they might very well do without ; the gentlemen who administer to our daily and ordinary wants, are men who are entitled to our respect, and so far as they supply our daily wants we respect them. But when the element of trade is introduced we then recognise them as gentlemen who are serving us for their own benefit as well as ours. Now when we go to a medical man, we do not think as a body about that medical man ; we do not think as a body about what he has done before he gave us his advice, all we think about is how far he can serve us. We are not in a position to know whether he serves us well or whether he serves us ill. Although the issue may be of a most momentous character, we have to rely upon his professional skill and honour, and we have no credentials of his skill to rely upon except those which are afforded by the examining bodies which stands between him and the public, and the diplomas which afford him the right to practise and to give us his advice. We know very well if this medical man be worthy of the name of a medical man that he will put aside his own convenience, he will put aside all considerations for himself, and he will give his consideration and his best skill and thought and energy to the welfare of his patient, regardless of any future reward which he may expect to reap. And this is what constitutes the great position of the medical profession. Now, Mr. President and gentlemen, this is the position which the medical profession occupies towards the public, and it is my sincere desire, not only my desire, but I believe it is my sincere belief, that before long the whole dental profession will occupy a similar position towards the public. I also wish that the dental profession should occupy the same position towards the medical profession, and I am happy to say that I have proof around me to-night to show that we are gradually but surely attaining to that position. We have had within recent years an Act of Parliament which has constituted us a legal profession, and we wish to take that position, not because that Act of Parliament was passed, but because we are conducting ourselves in such a manner as to entitle us to that legal position. No Act of Parliament can make a man just, wise, or honest ; no Act of Parliament can make a man a dentist, but an Act of Parliament can specify who shall be dentists. And this Act has specified who shall be dentists, and the men who are in the future to serve the British public as dentists are men who have passed a preliminary examination exactly on the same lines as the gentlemen who wish to

enter the medical profession, and who have also passed a four years, curriculum of arduous study, and who have undergone such examinations as shall prove them to be qualified to practise the profession of dentistry. Now, gentlemen, that is the position which we as the British Dental Association seek to occupy, and which we do occupy, and we wish both the medical profession and the public to know that we occupy it worthily. We do not come before them on the strength of an Act of Parliament; we do not come before them under the mere name, but we come before them as men who have qualified themselves to act towards the public as their servants. I know that we have been severely attacked in the position we have assumed. All we ask is, that when parents send their children to join our profession, they will educate them in such a manner as they can enter our profession as students, and follow a course of study provided for them, and which we hope will enable them to serve the public skilfully and as gentlemen. With this object, and with other objects which it would be unnecessary for me to specify, and which would take me too long to go over, the British Dental Association may be very well satisfied. It may be also very well satisfied with the recognition it has received from the medical profession, when it has such gentlemen as have proposed various toasts that night with them, and who are, I say it without hesitation, the leaders of that great profession. Gentlemen, I thank you for having listened to me so long, and for the way in which you have received the toast of the "British Dental Association."

The next toast was that of "Owens College," which was proposed by Mr. C. S. Tomes. In doing so, Mr. Tomes, who was cordially received, said the irony of fate seemed to have fastened upon him, upon that and other occasions, the duty of returning thanks for favours received. Although he was not more ungrateful than other people, yet he felt in some ways that he was rather unfitted for performing such a task gracefully. He was always in such terror of using fulsome expressions that he erred by going into the opposite extreme, and displaying a coldness in thanking people for favours received. They had all of them experienced during the last few days the hospitality of Owens College. Of Owens College, from his very earliest student days, he had never known much, except that it had been a *habitat* of men who had been leaders in every branch of science. When he was for a few minutes in Owens College that day, he asked to look at the list of its past and present professors. When he came to look over that list he saw many names that he had not previously associated with Owens College. Among that list he saw several names of men who were in the very foremost rank of every branch of science. Owens College had attracted around it a galaxy of distinguished men, and they had been receiving for the past few days the hospitality of that distinguished body. Owens College, or as it was better known, the

Victoria University, had instituted in addition to its medical school, a dental department, and he thought it was an enormous advantage to their profession to be associated with such a body. Although they were but a young association, they were, he hoped, not without backbone, and yet like all vertebrate animals, except perhaps man, they had got a tail. The medical profession had also had it, and he supposed most professions in their initiative had had it, and had got rid of it. He concluded by thanking the authorities of Owens College most warmly and heartily for the hospitality they had accorded to the members of the dental profession.

Professor D. J. LEECH who, on rising to respond, was received with loud cheers, said :—He thanked them on the part of the College for the hearty manner in which that toast had been proposed and drunk. He wished that the Principal of the College, or the Dean of the Medical School, had been there to answer in his place. He was sure that they would have thanked them for the courtesy and welcome they had extended in better terms and more warmly than he could on that occasion. He had watched with interest the growth of Owens College from the old buildings, to the stately pile which now composed the College. At first it seemed as if the College would languish, but the public of Manchester began to appreciate it, and a very bold step was taken and the first part of the present College built. In a short time the departments grew, and from the time it was first founded until the present time, they had been constantly building, and were building still. After the medical school had been established, one of the first departments founded was a dental department, which was established principally through the exertions of Professor Gamgee. That department had grown, and would, he felt certain, become a very important part of their College. He thanked them on behalf of the College for the kindness with which they had received the toast.

The next toast was that of the "Medical Schools," proposed by Mr. Morton Smale, who said that the toast which had been put down to him seemed to be "rather a large order." He did not know whether he was to propose the health of all the medical schools of Great Britain, or only of those in the immediate neighbourhood. He thought he should be right if he confined himself to the latter. He supposed the reason that toast was proposed was that the dental profession was a younger brother of the medical profession, whom the medical profession were glad to help forward. Another reason, he supposed, was because they could not get their education as dentists without going to the medical schools. It was not possible for them to become dentists without having spent two years within a medical school. If he were to speak as he wished to do about local schools, he must restrict himself, he supposed, to Manchester, Liverpool, Birmingham, and to Leeds. All these schools had turned out men of exceptional merit.

If he turned to Birmingham he found a man that all the medical world were proud to honour, viz., Sir Walter Foster. At Liverpool there were Dr. Michell Banks, Messrs. Rushton Parker and Oliver Pemberton, the latter a gentleman who had received the suffrages of his fellows, and had been elected a member of the Council of the Royal College of Surgeons. At Leeds he found Mr. Pridgin Teale, whose name was a household word, while at Manchester he had only to mention to them the names of Professors Glynn, Gotch, Leech, and Dreschfield.

He had been told very often in conversation by members of his own profession, and indeed by members of the medical profession (he did not like to separate them), that all the brains were not to be found in London.

Well, as a Londoner, he should like to endorse that statement, and he would tell them why he endorsed it, because amongst his friends in London whom he valued and thought very highly of, he found such men as Sir William Roberts, Dr. Broadbent, Dr. Cullingworth, Mr. Harrison and Dr. Maguire. He thought that the brains of Manchester must indeed be large, and the medical men of that city must be indeed important, when they could spare such men as those gentlemen he had mentioned, to practise in London. He thanked Manchester with all his heart for having sent them men of such reputation, for such good physicians and surgeons, and they were very proud to have them. In proposing that toast, he asked them to drink it with the greatest cordiality, and in doing so he asked them to couple with it the names of Mr. Edward Lund, Professor J. Dreschfield, and Mr. Pridgin Teale.

Mr. LUND, in reply, said the toast with which his name had been associated was a very important one. He too, if not the oldest, was one of the oldest associated with Owens College in the medical department. He took it as a very great honour to have been for fifteen years a member of the Council of the College of Surgeons, and he had seen in that position the growth of their profession. He had always spoken in praise of those who acted as dentists long before the Dental Act was obtained, and had pointed out that with better education they would raise their position in society, and the influence they would have in their particular department. Mr. Lund referred to the importance of one part of the work engaged in by dentists, namely, the preservation of the teeth of children, whereby they were enabled to grow up healthy, and attain old age with a fairly respectable set of "grinders."

The toast was also responded to by Professor J. DRESCHFELD, who, in doing so, referred in eulogistic terms to the work done at Owens College by the dental students, and considered that the dental department formed one of the most efficient parts of their school. They were now adding to the College a block of buildings to contain

pathological laboratories, which, when finished, would be the best in England.

Mr. PRIDGIN TEALE also responded, and in doing so he said the Medical Act of 1858 had been a great benefit to the medical profession, as it was constituted under that Act, and he thought it would be a great benefit to the dental profession to be constituted in a similar manner. It was a great benefit to feel that their profession was united, and that to belong to that profession was a privilege, and that to be outside it was a very great loss. Amongst the duties that had to be performed by the executive were those painful duties which occurred now and then, of having to erase from the Register the names of members of the profession who had been acting in a manner that was disgraceful to their profession. He did not suppose that that erasure affected very much the men concerned, as they must have known that their conduct would bring upon them the judgment of an absolutely impartial body of men who had no prejudice in the matter whatever. The fact, however, of publishing the men's names in the public journals was a very great factor in preventing others from doing wrong. People often complained that they could not prosecute "quacks." He thought it was just as well that they had not that power, and that they were not called upon to do it. If they had had to do so they would simply have raised the men they prosecuted into the position of martyrs, and placed them in a better position than ever. Mr. Teale then referred to the development of the Leeds Infirmary since the year 1845, from which time until now they had gone on increasing, and they were now building schools capable of accommodating four hundred students.

The toast of "Our Guests" was proposed by Mr. W. E. HARDING, who said that the whole of their working life was spent in receiving guests. But he had no doubt that those present to-night preferred to visit them in their collective, rather than in their individual, capacity. Amongst their guests that evening were men prominent in surgery, divinity, and in law. In asking them to drink that toast, he could not do better than couple with it the name of Professor Copinger.

Professor COPINGER, who on rising to respond was received with loud cheers, said he could have wished that the task of replying to the toast had fallen into abler hands than his, but as it was he could only express the pleasure he felt for the manner in which the toast had been received. He had been struck, while reading the account of the Dental Association in the paper, of what importance that annual gathering must be, not only to the profession, but also to the public, who had at those meetings brought before them such prominent matters in connection with the enjoyment of life itself. His experience of large gatherings such as those was that broader views must absolutely be engendered. He was sure that the dentists of Man-

chester would feel helped, as they had felt honoured, by the visit of the British Dental Association this year, and the introduction of so much learning and experience in their midst. He referred to the use of Dental Hospitals in their midst, and in referring to Manchester, said that they were only waiting for the wealthy citizens of Manchester to furnish funds to enable them to build one suitable to the requirements of their popular city. He thought that time was not far distant, and it was helped very considerably by gatherings such as that he saw before him that night.

The toast was drunk with enthusiasm.

Mr. Alderman LEE RYMER then rose to propose the toast of "The President," and his rising was the signal for an outburst of cheering in honour of the gentleman whose name was associated with the toast he was called upon to propose. Mr. Rymer said that at that late hour of the evening he must be brief, and he was quite sure that it was not necessary much should be said, because his was a toast which he was sure would commend itself to the favourable consideration of everyone. Their President had told him he was a Yankee, and he (Mr. Rymer) was sure that Uncle Sam was as proud of him as he was of Uncle Sam. Those present that evening looked upon him as a thorough Englishman, and the dental profession had done honour to itself by electing him President of their Association. He was quite sure that the Midland Counties Branch would thoroughly appreciate the compliment that had been paid to Mr. Quinby, who was one of their most important and distinguished members, and that feeling would also be shared by all the dental associations throughout England. A great deal of the success of that meeting had been due to the presence of Mrs. Quinby, and he therefore asked them to join him in drinking her health, as well as that of their excellent President.

The toast was drunk with great enthusiasm.

The PRESIDENT, in responding to the toast, said he was a modest man, and he was so overwhelmed by the honours they had heaped upon him at that meeting, and the kind manner in which they had received that toast, that he scarcely knew how to express himself. He could only say on behalf of himself and Mrs. Quinby, that he thanked them most heartily for the kind manner in which they had drunk his health.

The proceedings then terminated.

DEMONSTRATIONS.

It is said that demonstrations should be witnessed to be fully appreciated, that they cannot be described, and we feel bound to admit the truth of this assertion in reference to the various matters that were illustrated and explained at the

Annual Meeting at Manchester on the 13th of August. There was so much to be seen that it is impossible in the space at our disposal to give anything like an adequate idea of what was really done.

(a) ANÆSTHETIC DEMONSTRATIONS.

Dr. F. W. HEWITT (London) gave some instructive details concerning the anæsthetic effects of nitrous oxide in conjunction with oxygen when administered at ordinary atmospheric pressures, and explained the new apparatus which he has lately introduced for the administration of the mixture. He stated that perfectly pure nitrous oxide is only respirable for a very brief period, but that by using oxygen as a vehicle for it, large volumes of the mixture can be thrown into the patient's circulation—far larger quantities than one can administer of nitrous oxide without oxygen—and thus the resulting period of anæsthesia becomes appreciably prolonged.* Dr. Hewitt administered the mixture to two patients with satisfactory results, although the first, a stout young woman, was so extremely nervous that he did not consider her as favourable a subject as he could have wished. The duration of the anæsthesia in the case of the second patient, a boy of



FIG.—FACEPIECE ILLUSTRATING MR. ROWELL'S DEMONSTRATION.

- T. Tap controlling valves. When it is turned as shown above the valves in the stopcock act, and all expirations escape.
- H. Handle which determines whether air or nitrous oxide is breathed. When the handle is arranged as shown in the illustration, the air-hole is open, and air is breathed; when it is turned so that the air-hole is closed, nitrous oxide is breathed instead of air.

* Full particulars of Dr. Hewitt's method of employing the nitrous oxide and oxygen mixture, with remarks on 800 cases, will be found in the *Transactions of the Odontological Society of Great Britain* for June, 1892.

about fourteen, was forty-five seconds as timed by Mr. Reinhardt, of London, or rather above the average, which Dr. Hewitt said was forty-four seconds.

Mr. G. W. ROWELL (London) demonstrated the value of an occasional inspiration of air during the inhalation of nitrous oxide, claiming that a larger quantity of the gas can thus be taken, and a more complete anæsthesia obtained. His plan is to allow the patient to take from eighteen to twenty-five inspirations of the gas—the number to be determined by the administrator according to his judgment of the patient—to start with, then to give one of air, and afterwards one of air to every eight or ten of nitrous oxide until the required degree of anæsthesia is obtained.

The advantage claimed for the method is a narcosis lasting from eight to ten seconds longer than with gas alone—a point of some importance, inasmuch as it enables the operator so much more time to do his work. As Mr. Rowell pointed out, no special apparatus is necessary beyond a facepiece with an air inlet such as the above. Mr. Rowell then administered to several patients with excellent results.

Mr. COXON (Wisbech) showed an ingenious new union for gas bottles which does away with the necessity of using the male screws on the bottles to which the union of the Cattlin's bag is generally attached. He then demonstrated the value of his method of prolonging nitrous oxide anæsthesia by means of his long bent mouth tube. A concise account of Mr. Coxon's apparatus, with his plan of using it, and the results obtained, will be found on pages 455-6 of this Journal for August, 1891. Mr. Coxon then demonstrated his method upon two patients. In the first, a female æt. 24, of hysterical temperament, the anæsthesia lasted sixty seconds, allowing the operation to be completed, while in the second patient, a female æt. 28, the period of anæsthesia was seventy seconds, and there was no sign of returning consciousness as long as the injector was kept working. In this patient the operation was also completed.

Mr. A. WILSON (Manchester) described the mode of administering gas and ether by means of a Clover's inhaler between the stopcock and facepiece of a Hewitt's gas apparatus, and afterwards demonstrated upon three or four patients by this method.

The extractions for the various patients anæsthetised were performed by Mr. Carter (Leeds). It should also be mentioned that Mr. Smithard's apparatus, with pedal attachment for turning on the gas, was used, and this gentleman also, with the assistance of the house surgeon of the Dental Hospital, kindly attended to the patients who were not required by the demonstrators.

(B) OPERATIVE AND MECHANICAL DENTISTRY DEMONSTRATIONS.

Mr. HARRY ROSE (London) gave a demonstration with his continuous gum furnace. The time at Mr. Rose's disposal did not permit

of the piece which he baked cooling soon enough for him to hand it round for inspection, somewhat to the disappointment of those who witnessed his work, but we are informed that it was shown later in the day, and considered very good.

Mr. MATTHEWS (Liverpool) baked two pieces of continuous gum work in Dr. Ambler Tees' Liliput furnace which were very nice, and admired by those who examined them.

Mr. J. HOOTON (Manchester) showed the moulds used in his new method of working continuous gum.*

Mr. PETER HEADRIDGE (Manchester) fitted a mineral tip on a left upper central tooth.

Mr. BRIAULT (London) restored a left upper lateral with a porcelain and gold crown, his work being favourably criticised.

Mr. WHITTAKER (Manchester) gave a demonstration on porcelain inlays. He also exhibited a patient with two inlays in the upper centrals inserted eight months ago, which were a beautiful match, and in perfect condition. To prepare an inlay rod for cutting into sections Mr. Whittaker fixes it in an engine porte-polisher with shellac, and grinds it down to remove the outer skin, and making it round by running it rapidly in the engine and holding it firmly on a large corundum wheel or slab, after which it can be quickly cut through with a diamond disc, which is kept wetted with water. It may be mentioned in this connection that Mr. DALL (Glasgow) showed in Messrs. Ash & Sons' exhibit his choice and varied selection of inlays, with specimens of his work, also artificial teeth and inlay rods in various stages of preparation for cutting into inlays, and a full equipment of the instruments used in the process, from the initial stage of grinding to the final finishing in the mouth. This special exhibit was quite a feature at the Manchester meeting, and was looked at with great interest by a large number of those present. In answer to a question that was frequently asked, as to whether so many instruments are necessary for the work, it may be stated that Mr. Dall does not recommend all that he showed for general use.

Mr. BALDWIN (London) gave a demonstration with tin and gold combined as a filling material. He used one sheet of tin between two of gold, all of which he folded four times, and cut into strips an eighth of an inch wide. Mr. Baldwin filled a distal cavity in a second lower bicuspid.

Mr. W. H. DOLAMORE (London) gave a demonstration on the preparation and fixing of gold crowns. The tooth (a lower molar) was prepared, the crown made and then fixed at the sitting. The demonstrator advocated making the crown to the mouth in preference to

* A full description of this method, with illustrations of Mr. Hooton's moulds, will be found in the *Transactions of the Odontological Society* for December, 1891.

a model, and laid stress on being absolutely sure that the roots or nerve were in a healthy condition before any attempt at crowning be made. He showed a new pattern pair of forceps for fitting the collar of the crown.

Mr. MATHESON (London) gave a demonstration on the exclusion of moisture from cavities, and showed the use of Fernald's rubber-dam holder. For a description of Mr. Matheson's work we cannot do better than refer our readers to his very clear and interesting paper which appeared in the July number of this Journal.

Mr. HUMBY (London) showed his steam swager for swaging or pressing plates of soft metal into any desired shape by steam pressure. The apparatus is said to be "invaluable for bringing out, polished, the upper and lower surfaces of the palate of a celluloid or vulcanite case ; also for making a plate to take the place of a wax matrix for mounting teeth upon ; and it is also most useful for making a preparation plate to try in the mouth to see if the impression is correct."

Mr. R. P. LENNOX demonstrated again the several uses for fusible metal which he described at the London meeting of the Association last year, and afterwards in a paper appearing in the Journal and Transactions of the Association. This year he dwelt more particularly on his method of taking an impression of a root for an all-gold crown, illustrating the several steps in the process by a series of impressions and models, and pointing out that from first to last it was only necessary to go four times to the root, much loss of time to the operator and much pain to the patient being thus spared. The appliances used are very simple, consisting of a simple soft copper strip, some fusible metal, a die made with a natural tooth, and the usual impressions and models. For taking impressions Mr. Lennox uses a composition recommended to him by Mr. Harding of Shrewsbury, which elicited many questions and appeared to commend itself much to his audience.

Mr. LLOYD WILLIAMS (London) showed Suersen's obturators, and described their value and the best means of making them.

A method of utilising hollow boxes in vulcanite plates was also demonstrated by Mr. E. Lloyd Williams, who illustrated its utility in a case where a patient had enlarged the socket of an upper molar by constant plugging until the cavities of the nose and antrum had been converted into one large chamber, communicating with the mouth by a circular opening three-quarters of an inch in diameter. To obviate the distress experienced by the patient a vulcanite plate was constructed with a large hollow box on the side of the lesion.

The method of packing a duplicate of this case was demonstrated, being on the lines of that adopted in the construction of an ordinary box obturator. The limitations of the hollow chamber desired were marked with an aniline pencil on the plaster investment in both halves of the flask used, and the area thus marked coated with a solution of

rubber. A single layer of rubber was then applied to the lower or lidless portion of the box, and the joints well secured by varnishing. Into this box three or four drops of water were placed, and the lid having been formed with a single layer of rubber in the upper half of the flask both are brought together. Mr. Lloyd Williams is opposed to the usual practice of *trying* a case after it is packed, and prefers screwing home whilst exposed to a sufficient heat in the vulcanizer—the particular one exhibited being manufactured by the Dental Manufacturing Company. It was pointed out that hollow boxes of large area may be utilised in any case where thickness of rubber may be an objection, and teeth may be mounted in the usual way, provided that the *three-part* method of flasking (which is Mr. Lloyd William's usual method of procedure, even in simple cases) be adopted.

Mr. BRUNTON (Leeds) showed a new flask for vulcanite work and the various instruments and appliances that he brought to the notice of the meeting in his paper in which their features and merits are described. This paper will be published in our next issue.

Messrs. BROUGHTON (Eccles), CUTTRISS (Leeds), and KIRBY (Bedford) showed various forms of electrical dental appliances, and carefully explained their several features and uses. In addition to the apparatus mentioned by Mr. Broughton in his paper we may mention that Mr. Kirby exhibited his dental motor, which we understand is now so far perfect that he has introduced it for sale at the dental dépôts.

MICROSCOPICAL SECTION.

EXHIBITS.

THE exhibition in connection with the Microscopical Section this year was unusually large, and it is to be hoped equally attractive, the committee being indebted to many contributors for the loan of a valuable and interesting collection.

Microscopes.

Contributors :—J. J. Andrew, Dr. Baker, G. G. Campion, D. E. Caush, G. Cunningham, J. W. Dunkerley, W. E. Harding, W. A. Hooton, J. Howard Mummery, A. Hopewell Smith, Sidney Spokes, Florentine Dental Society.

Under the microscopes during the meeting nearly 200 slides were shown, the specimens being changed daily, and at the side of each a descriptive label was placed. They illustrated most of the characters met with in the comparative and human histology of the teeth, together with the pathology. Amongst them, however, may be noted complete serial sections of the tooth-germ, showing the whole of its relations, and the globular deposition of the lime salts was beautifully exemplified in a young tooth. In a bicuspid which had been placed in an

alcoholic stain immediately after extraction, tubuli were seen to pass from the dentine into the enamel, there to branch—a somewhat unusual occurrence. The various defects in structure of the dentine were well represented: in some marked irregularity of structure was seen, the tubuli being interwoven or leashed together, and containing in their midst many nodular masses of laminated appearance with fine tubuli radiating from the centre, resembling the odontophytes seen along the border of the pulp canal where deposits of secondary dentine have occurred; in others large canals existed, passing from the pulp through the dentine and cement, and a few showed the presence of vascular canals with the diversion of the tubuli produced thereby. The presence of connective tissue in dentine was seen not only in several specimens of human dentine but also in one of the elephant.

Several specimens showed the absorption of the dentine not only from without, but also from within. In some cases the absorption opened a way through to the exterior of the dentine. The many beautiful specimens of the pulp *in situ*, prepared by the Weil and the Hopewell Smith processes, showed not only its normal histology, but several slides illustrating acute inflammation and fibroid degeneration were also present amongst the collection. In one specimen of pulp polypus the tissue was rather remarkably covered with squamous epithelium. The specimen of cyst attached to the end of a root (recently figured in this Journal) lined with columnar ciliated epithelium, was shown, and members were thereby able to examine this interesting and rare specimen. Of odontomes, one was a marked conglomeration of dentine cementum and other tissue. Some slides with sections of implanted teeth showed the nature of the adhesion produced; these teeth had been in 436 days.

Caries was splendidly illustrated, both natural and artificial, and their similarity could thus be compared. In some specimens of natural caries a peculiarly striated appearance was seen; this in many cases, with the aid of a higher power, was shown to be due to short gaping transverse slits covering two or three tubuli. The leptothrix were seen not only coiled up in the tubuli, but also lying between these channels. Specimens illustrating phagocytosis were very numerous. We append a list of exhibits.

Microscopical Slides (Dental Histology and Pathology).

COMPARATIVE.

DEVELOPMENT.

1. Newt	...	...	...	...	J. J. Andrew
2. Crocodile	...	...	...	...	J. J. Andrew
3. Snake	...	...	...	...	W. A. Hooton

ATTACHMENT.

4. Pike	...	...	...	...	J. W. Dunkerley
5. Siren	...	...	...	...	J. J. Andrew

- | | | | | | |
|-----------|-----|-----|-----|-----|-------------------|
| 6. Iguana | ... | ... | ... | ... | J. J. Andrew |
| 7. Snake | ... | ... | ... | ... | D. E. Caush |
| 8 Hake | ... | ... | ... | ... | A. Hopewell Smith |
- ENAMEL.
- | | | | | | |
|--------|-----|-----|-----|-----|-----------------|
| 9. Rat | ... | ... | ... | ... | J. W. Dunkerley |
|--------|-----|-----|-----|-----|-----------------|
- DENTINE.
- | | | | | |
|-----------------------------|-----|-----|-----|-------------------|
| 10. Hake (vaso-dentine) | ... | ... | ... | J. Howard Mummery |
| 11. Ray (plici-dentine) | ... | ... | ... | J. W. Dunkerley |
| 12. Flounder (vaso-dentine) | ... | ... | ... | W. A. Hooton |
- MISCELLANEOUS.
- | | | | |
|--|--------------|-------------------|---------------|
| 13. Pristis (snout and tooth) | ... | ... | J. J. Andrew |
| 14. Horse | ... | ... | J. J. Andrew |
| 15. Pharyngeal tooth... | ... | ... | Sidney Spokes |
| 16. Pulp canine tooth, Coati Mundi | ... | J. J. Andrew | |
| 17. Baleen plate, Whale | ... | J. J. Andrew | |
| 18. 19. Fossil tooth, Psammodus porosus... | J. J. Andrew | | |
| 20. Upper Jaw, Monkey tooth <i>in situ</i> | ... | A. Hopewell Smith | |
| 21. Tooth of Fish, Sargodon tomicus | ... | J. W. Dunkerley | |
- HUMAN.
- | | | | |
|--------------------|-----|-----|-------------|
| 22. Human alveolus | ... | ... | D. E. Caush |
|--------------------|-----|-----|-------------|
- DEVELOPMENT.
- | | | |
|---|-------------------|-------------------|
| 23 to 28. Development of jaw and teeth in pig (tooth germs in various stages) | J. Howard Mummery | |
| 29, 30. Development in dog | ... | W. A. Hooton |
| 30. (<i>a.d.</i>) Development in kitten | ... | G. Cunningham |
| 31 to 35. Development of upper and lower jaws of human foetus (tooth germs) | J. J. Andrew | |
| 36 to 38. Sections through jaws of child aged 6 months (Rickets) | ... | Sidney Spokes |
| 39. Human tooth, incomplete root, odontoblasts | ... | J. Howard Mummery |
| 40, 41. Absorption of temporary teeth, odontoclasts in Howships lacunæ | J. Howard Mummery | |
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- | | | |
|---|-------|---|
| 42. Globular deposits of lime salts | ... | J. Howard Mummery |
| 43 to 51. Sections of teeth pulp <i>in situ</i> | ... | <div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;"> D. E. Caush
 W. A. Hooton
 J. Howard Mummery
 A. Hopewell Smith </div> <div style="font-size: 2em; vertical-align: middle; margin: 0 5px;">{</div> </div> |
| 52 to 54. Interglobular spaces | ... | <div style="display: inline-block; vertical-align: middle;"> D. E. Caush
 W. E. Harding
 J. Howard Mummery </div> <div style="font-size: 2em; vertical-align: middle; margin: 0 5px;">{</div> |
| 55 to 57. Odontomes | ..... | J. W. Dunkerley |
- ENAMEL.
- | | | |
|--|-----|-------------|
| 58. Bicuspid, tubuli passing into enamel | ... | D. E. Caush |
|--|-----|-------------|

DENTINE.

59. Irregular formation of D. E. Caush
- 60 to 63. Sections of human teeth showing numerous vascular canals. The last section has in addition a canal passing between pulp and cementum... D. E. Caush
- 64 to 67. Connective tissue fibres seen to pass from pulp into dentine ... { D. E. Caush
J. Howard Mummery
A. Hopewell Smith
- 68, 69. Irregular spaces in dentine (incisors) D. E. Caush
- 70 to 77. Canals passing from the pulp through the dentine into the cementum D. E. Caush, A. Hopewell Smith
- 78 to 84. Showing invagination of cemental tissue with complete isolation of an island of this tissue surrounded by dentine D. E. Caush
- 85 to 87. Secondary dentine { D. E. Caush
J. Howard Mummery
A. Hopewell Smith
88. Erosion, inferior incisor... .. D. E. Caush
- 89 to 110. Specimens of absorption of dentine, either from within pulp chamber or between dentine and cementum in some giant cells are to be seen, in others re-deposit of cementum has taken place D. E. Caush

CEMENTUM.

- 111, 112. Exostosis D. E. Caush, W. E. Harding
113. Exostosis, irregular deposition of tissue.. D. E. Caush
114. Exostosis with fibres of connective tissue interlacing in cement ... Sidney Spokes
115. Branched end of tubuli uniting to or passing into dentine, lacunæ of cemental tissue D. E. Caush
- 116 to 121. Absorption of cement, giant cells, re-deposits of cemental tissue. D. E. Caush

PULP.

122. Acute Inflammation A. Hopewell Smith
125. Degenerative changes D. E. Caush, Sidney Spokes
133. Specimens, calcification of pulp, nodules, &c. { J. J. Andrew
G. G. Campion
D. E. Caush
J. Howard Mummery.
135. Polypus of Pulp Dr. Baker, A. Hopewell Smith
136. Chronic Inflammation, root membrane Dr. Baker

137. Tooth with alveolus attached ... D. E. Caush
 138. Membrane separated by abscess from
 fang ... Sidney Spokes
 139. Abscess sac attached to root ... A. Hopewell Smith
 140. Cyst of root membrane, lined with cili-
 ated epithelium ... Dr. Baker

CARIES.

- 141 to 161. Specimens. Dr. Baker (3), G. G. Champion (1), D. E.
 Caush (6), W. E. Harding (1), J. Howard Mummery (13).
 162 to 165. Artificial caries. ... Dr. Baker, J. Howard Mummery

- 166 to 169. Specimens of Epulis ... { Dr. Baker
 G. G. Champion
 D. E. Caush
 170 to 175. Specimens Bacteria. Dr. Baker, J. Howard Mummery.
 Staphylococcus cereus albus. Actinomycosis. Tubercle
 Bacilli. Anthrax.

MISCELLANEOUS.

- 176 to 185. ... J. Howard Mummery
 186 to 183. Teeth after implantation ... G. Cunningham

Lantern Slides.

Contributors:—J. J. Andrew (Belfast); Dr. Baker (Dublin); G. G. Champion (Manchester); J. W. Dunkerley; J. Howard Mummery (London); T. Charters White (London); Professor Delépine, and the Florentine Dental Society.

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|--|------------------------------------|
| 1. Miliobates | 36. Dentinal fibrillæ |
| 2. Pristis (Snout) | 37. Cementum |
| 3. Tooth and Jaw of Sphenodon | 38, 39. Pulp |
| 4. Tooth of Mouse | 40. Exostosis |
| 4a. Hake (attachment) | 41, 42. Dilaceration |
| 5, 6. Vaso-dentine (Hake) | 43. Honey-combed dentine |
| 7, 8. Tooth of Rat | 44, 45. Osteo-dentine |
| 9. Connective tissue in tusk of Elephant | 46, 47. Secondary dentine |
| 10 to 20. Development of teeth | 48 to 50. Pulp nodules |
| 21, 22. Organ of Melasey | 51. Cyst, root membrane |
| 23 to 25. Absorption organ | 52. Gum polypus |
| 26. Enamel, deciduous tooth | 53 to 55. Epulis |
| 27. Cementum overlapping enamel | 56 to 79. Caries. |
| 28. Dentine and pulp | 80. Streptococcus pyogenus |
| 29, 30. Odontoblasts and newly formed layer of dentine | 81. Gonococcus |
| 31. Connective tissue in dentine | 82. M. Tetragenus |
| 32 to 34. Interglobular spaces in dentine | 83. Encapsulated cocci (Pneumonia) |
| 35. Section across dentinal tubes | 84. Spirillum of Asiatic cholera |
| | 85. Bacillus Anthrax (2) |
| | 86. Bacillus Malignant œdema |
| | 87. Bacillus of Tetanus |

- | | |
|---|--|
| 88. <i>Bacillus Murisepticus</i> | 102. <i>Actinomyces</i> |
| 89. <i>Bacillus Tuberculosis</i> (5) | 103. <i>Oidium lactis</i> |
| 90. <i>Bacillus Lepra</i> (2) | 104. Colony of a yeast |
| 91. <i>Actinomyces</i> (2) | 105. <i>Saccharomyces</i> mycoderma
from sputum |
| 92. <i>Bacillus Buccalis muciferus</i>
(Miller) capsule coccus | 106. Portion of a colony of <i>B.</i>
<i>Zopfii</i> |
| 93. Typhoid bacillus | 107. Test tube culture of tubercle
bacillus |
| 94. Anthrax bacillus (3) | 108. Leucocytes in Leucocythæmia,
Erich's preparation |
| 95. Cholera bacillus showing fla-
gella | 109. Granular leucocytes in a case
of sepsis (2) |
| 96. Colony of Anthrax | 110. Cells encapsulating bacteria
(7) |
| 97. <i>Spirillum</i> showing spores | 111. Miscellaneous specimens (20) |
| 98. " " flagella | |
| 99. Large oval coccus | |
| 100. Involution forms of a bacillus
from the mouth | |
| 101. <i>Bacillus Prodigiosus</i> on
potato | |

Photomicrographs and Drawings.

Contributors :—D. E. Caush, J. Howard Mummery, A. Hopewell Smith. Three large drawings, giant cells and bacilli; the thirty-two photomicrographs included specimens of histology and pathology of teeth and various forms of micro-organisms, &c.

College Exhibits.

BY PROFESSOR DELÉPINE: Pathological Department.
PURE CULTURES OF MICRO-ORGANISMS.

PATHOGENIC	CHROMOGENIC
Suppurative diseases	Black White
Diphtheria	Violet
Pneumonia	Green
Typhoid fever	Orange
Splenic fever (anthrax)	Yellow
Cholera	Red (fluorescent)
Tetanus	FERMENTATION
Tuberculosis	Lactic Acid
Rhinoscleroma	Butyric acid
Glanders	MOULDS (Pathogenic or not)
Actinomycosis	Yeasts

Appliance Exhibits.

BY PROFESSOR MARSHALL: Biological Department.
MICROTOMES—Among which was shown, "The Cambridge," Caldwell, Young, &c.; imbedding and cementing apparatus, &c.

BY PROFESSOR DELÉPINE : Pathological Department.

Automatic Microtome which he had constructed in 1881, probably the first instrument of its kind.

One of the original Rutherford's Ice Microtome, 1879.

The first plane iron used for microscopical section cutting in Edinburgh, 1880, in the use of which the contributor claims priority.

Zeiss Microtome.

Richert Microtome Modifier of Rivets.

Roye Microtome.

A cheap Sterilizer and an "Incubator."

Literature.

Contributors :—G. G. Campion, J. W. Dunkerley, F. Harrison, David Headridge, W. A. Hooton, P. A. Linnell, J. Howard Mummery, T. Charters White, and Manchester Medical Society and Odontological Society.

MICROSCOPY.

Beale—How to work with the Microscope.

Coleman, W. S.—Section Cutting and Staining.

Carpenter—The Microscope and its Revelations.

Cole—Studies in Microscopical Science.

Davis—Practical Microscopy.

Hogg—The Microscope, its history and construction.

Lee, A. B.—Microtomists' Vade mecum.

Marsh, S.—Microscopical Section Cutting, practical guide.

Gibbes, H.—Practical Histology Mounting.

Schaffer-Quains—Anatomy (Histology).

Dictionary of the Microscope.

PHOTOGRAPHY.

Crookshank—Photography of Bacteria.

Malley, A. C.—Photomicrography.

Pringle—Practical Photomicrography.

Neuhans—Lehrbuch der Photomicrographie.

HISTOLOGY.

Wedl—Atlas of the Teeth.

Underwood—Aids to Histology.

Owen—Odontography.

Black—Periosteum, &c.

Legros & Magitôt—Robin's, &c.

Kölliker—Manual of Human Microscopic Anatomy.

Naysmith—Development, Structure and Diseases of Teeth, 1839.

BACTERIOLOGY.

Miller—Micro-organisms of the Mouth.

Flügge—Die Mikro-organismen.

Leeuwenhoek's Opera omnia sive arcana naturæ ope microscopiorum exactissimorum detecta, 1800.

Crookshank—Bacteria.

Boyce—Text-book of Morbid Histology.

Leber & Rottenstein—Caries of the Teeth.

Magitôt—Researches on the Caries of the Teeth.

Woodhead—Practical Pathology.

„ —Bacteria and their products.

Frankell & Pteiffe—Atlas Bacteria.

Griffith—Micro-organisms.

Eisenberg—Bacteriologische Diagnostik.

Trade Exhibits.

Aylward — Microscopes, Microtomes, Mounting Stages, Cabinets, Camera Lucida, Dissecting Instruments, &c.

Chadwick—Camera, with extension bellows for photomicrographic purposes, Photomicrographs, &c.

Franks—Cheap Microscopes and Optical Accessories, Microtomes.

Furnival—Photomicrographs taken at visual focus, Stereoscopic Photomicrographs, &c.

Ward—Microscopic Accessories, Dissecting Instruments, &c., Lantern Slides.

Woolley & Sons—Microscopes, Microtomes, Lamps, &c.

DEMONSTRATIONS.

These were held in conjunction with the other demonstrations on Saturday morning, printed slips being distributed which gave an epitomised description of the methods pursued.

ON A NEW METHOD OF PREPARING SECTIONS OF TEETH TO DEMONSTRATE THE HARD AND SOFT TISSUES IN COMBINATION.

By A. HOPEWELL SMITH, M.R.C.S., L.R.C.P., L.D.S. Eng.

The object of this demonstration was the exhibition of a new method of preparing and cutting sections of teeth for histological purposes. It had been introduced in November, 1891, to the Odontological Society of Great Britain in the form of a paper, accompanied by projection-microscopic illustrations. This demonstration was intended to be a sequel to that paper, and to show, in a practical manner, the whole *modus operandi* of the process.

Mr. Hopewell Smith began by pointing out the special advantages to be derived by adopting his process. He explained that the soft parts were retained *in situ*, without undergoing any appreciable change, pulp and periosteum being alike preserved, and more than a mere skeleton of a tooth being thereby obtained; he showed that any number of sections could be cut from one and the same tooth, and that they were all much thinner than those resulting from any other process.

A normal molar which had been immersed in spir. vini rect. for three or four weeks was rapidly dried in a cloth, and the apical foramina of the roots covered over with a thin layer of flexile collodion, to prevent the entrance of the acid fluid into the pulp chamber. It was then at once placed in a Wolrab's gold cylinder bottle, which contained 12c.c. of a 10 per cent. solution of HCl, and it was soon afterwards seen that decalcification had already begun.

A normal bicuspid, which had previously been softened and removed to a solution of lithium carbonate, was then divided transversely into several pieces by a razor held in the hand; the portions of tooth, having been subsequently well washed in water, were dropped into gum solution.

A portion of another bicuspid was next removed from the gum solution—in which it had remained for a couple of days—and placed on the stage of a Swift's ether freezing microtome. In about two minutes it was completely frozen through, and transverse sections were then cut, and being taken up on the point of a needle, allowed to drop into a black vulcanite tray filled with water, which was then passed round for personal examination by the members. The sections were found to be extremely thin, showing the pulp distinctly visible in the centre, and the periosteum at the periphery of each. The process was repeated with a longitudinal section of a molar, and in this way, in about ten minutes, between 100 to 150 sections were made.

One of the sections was finally stained in rubin, passed through distilled water to wash away excess of stain, dehydrated in absolute alcohol, "cleared" in cedar oil, and permanently mounted in Canada balsam. Placed under a microscope it formed an interesting object for inspection, and brought a useful and successful demonstration to a close. Leaflets bearing the following *résumé* were, at the end, distributed to members.

Outline of Mr. A. Hopewell Smith's Process of Preparing Sections of Teeth (Extracted from "Transactions of Odontological Society," November, 1891).

1. Immerse a newly-extracted tooth in Müller's fluid for three to four weeks, and remove to spir. vini. rect. for ten to twenty days. Alcohol (84 per cent.) may be used instead of Müller's fluid.

2. Remove, wash in water, dry, and seal up apical foramen and soft parts with collodion.

3. Place tooth in 15cc. of following solution: HCl 12 parts (pure); HNO₃ 30 parts (non-fuming); Aq. dest., 108 parts. Take 12cc. of 10 per cent. solution of HCl, and at end of fifteen hours add 1.5cc. of HNO₃, and at end of forty-eight hours add 1.5cc. of HNO₃, from commencement of immersion in acid solution.

Remove tooth at end of seventy-five to eighty hours and wash in

a solution of lithium carb. (5 grs. to an ounce) for half-an-hour. Wash thoroughly with distilled water.

5. Divide tooth by razor into several pieces and wash again in water. Place each in gum mucilage (B.P.) Leave in mucilage twelve to fifteen hours or more.

6. Transfer to stage of freezing microtome, cut, wash sections, and stain with orange-rubin, gold chloride, borax-carmin, or Weigert's solutions.

7. Dehydrate in absolute alcohol three minutes, "clear" in cedar oil one and a-half minutes, and mount in Canada balsam.

HARD SECTION CUTTING AND MOUNTING.

By J. W. DUNKERLEY, L.D.S., F.R.M.S.

In this demonstration the apparatus used, together with several sections in the various stages of preparation, were shown and explained, the following being an outline of the process, which is specially adapted for dealing with large specimens, such as horses' teeth, as well as smaller ones. Sections are cut off the tooth by means of a thin copper disc, fitted in the ordinary manner on to a dental lathe, and revolving in a tin trough which contains water and fine corundum powder. This thin disc is now replaced by a thick one, with the same trough and contents; the sides of this disc are used as a lapidary stone to grind thinner these sections, one side of which is next polished on a soft stone (water of Ayr) under running water, this surface being afterwards secured to a glass slip by thick Canada balsam. The grinding of the section on the thick copper disc is now proceeded with until the section is thin enough to see the structure; then proceed to polish this surface on the water of Ayr stone until all details are seen under the microscope, when after careful washing the section is mounted.

INJECTION OF A MAMMAL PREVIOUS TO SECTION CUTTING.

By H. MELLER (Steward of Biological Department).

A rabbit was chosen for this demonstration, and killed by an injection of potassium cyanide into the mouth. The apparatus and injecting mass being ready, immediately the animal was dead the thorax was opened and the apex of the heart cut off, so as to lay open the right and left ventricles; through the left ventricle a glass cannula was inserted into the aorta and fastened by a ligature tied round this vessel. To the glass cannula an ordinary indiarubber enema was attached, and by this means a continual stream of warm normal saline solution was driven through the vascular system, the blood and saline solution escaping by the right ventricle; as soon as this ran out clear, an ordinary glass syringe, charged with a gelatine mass coloured blue, was substituted for the enema. As soon as the injection began to pass out of the right ventricle a broad ligature was tied

tight round the heart, just above the cut end, thereby preventing any more escape of fluid by the right ventricle. The cannula was still retained in the aorta, but the syringe being changed for another containing a gelatine mass coloured red, and not quite so fine as the preceding, this was injected into the arterial system so as to drive the first injection as completely as possible into the veins. During the injection everything was kept under warm salt solution, and when the operation was completed the animal was laid aside for one or two hours to allow the mass to solidify. The demonstrator then explained that at the completion of this time the parts could be prepared for section cutting, or the animal preserved in 90 per cent. spirit or other preservative. The following are the formulæ for the various solutions used during the demonstration :—Normal saline solution—salt 7.5 grammes, water 1000 cc. Gelatine mass—soak gelatine in water till soft, then melt over water bath. Red injection—gelatine mass mixed with carmine, dissolved in ammonia. Blue injection—gelatine mass mixed with freshly precipitated Prussian blue.

The Eastern Counties Branch.

THE CAMBRIDGE CONFERENCE ON THE CONDITION OF SCHOOL CHILDREN'S TEETH.

THE HONORARY SECRETARY, Mr. Rhodes, read the invitation of the President and Council of the Eastern Counties Branch of the British Dental Association to Members of the University, School Teachers and others interested in School Hygiene. He explained that owing to the meeting being held in Vacation many who were in full sympathy with the objects of the Conference were unable to be present. He mentioned that letters regretting inability to attend had been received from Canon Browne, of St. Paul's Cathedral, London; Prof. Alex. Macalister, M.A., M.D., F.R.S.; Archdeacon F. Gerald Vesey; Rev. H. J. Carter, Duxford Rectory, Cambridge; and many others.

The CHAIRMAN, Sir James Crichton Browne, F.R.S., then delivered his address, entitled Tooth Culture (which we published in a previous number).

The CHAIRMAN then called upon the President of the Eastern Counties Branch to open the discussion.

Mr. CUNNINGHAM said: "Mr. Chairman, Ladies and Gentlemen, after the able and exhaustive address of our chairman, I feel that it will be difficult, if not impossible for me to do justice to my part in this Conference.

I would, first of all, call your attention to some notes on the results of an investigation into the condition of School Children's teeth, and which have been prepared for consideration at this Conference.

The British Dental Association are convinced that if more attention were paid to the teeth of children the general sum of public health and well-being would be materially increased, inasmuch as the disastrous effects frequently produced, even in early adult life, by the decay and loss of teeth may, in a very large majority of cases, be traced to disease of those organs in childhood. It is, for example, a well-known fact that a large percentage of the young men declared unfit for naval and military service are rejected solely on the ground of dental disease such as might with ease have been prevented by a comparatively small amount of proper attention at an earlier age.

The Association felt that it was necessary to show, by means of reliable statistics, the amount of dental disease existing amongst children, and thereby to demonstrate the necessity of some adequate provision being made to meet the evil; and also to provide sufficient data which would convince those in authority that in giving attention to these matters they would be acting in the interests of the public at large, as well as in those of the children themselves.

The examination of the teeth of school children in a number of schools (mainly reformatories, industrial schools, orphanages, national and board schools, and the like) throughout the country is now being conducted by dental practitioners approved of by the British Dental Association, in order to obtain statistics for the following purposes:—

1. To acquire a more exact knowledge of the condition of children's teeth at various ages.
2. To show, by means of the facts thus acquired, the disabilities under which children frequently suffer in their growth and development, and their important bearing upon the future health of the individual.

The returns already made show results which are of considerable value, inasmuch as they serve to prove what has hitherto been only a more or less well-grounded impression, that dental caries is one of the most widely prevalent diseases of childhood.

It is important to note that this statistical information is not only, so far as it goes, of a reliable nature, but is derived, not from the practice of dental surgeons or special hospitals, but from the inspection of industrial schools, training ships, and other scholastic institutions, and may thus be taken as typical of the condition of the teeth of the poorer classes both in England and Scotland, since the healthy teeth and mouths have been as carefully tabulated as the unhealthy.

It must not be supposed that the state of affairs revealed by these statistics is confined to the lower classes. An examination was made of one English school, consisting of the children of well-to-do working or tradesman class parents, and though the number of pupils was unfortunately too small to give a thoroughly reliable ratio, it is not without interest that it holds, at least provisionally the distinction of presenting the highest percentage of carious and defective teeth requiring attention.

An excellent comparison was afforded by two Edinburgh schools with a sufficiently large number of pupils where the examinations were made by the same examiner; the children are all well fed and live under perfectly sanitary conditions, and the average age in each school was exactly the same, viz., 11½ years. It was found that the ratio of defective permanent teeth per 100 children was 158.2 in the school for the children of well-to-do working people, and 273.9 in that for the children of a better class, professional men and merchants. This striking contrast is intensified by comparing the relative numbers of sound dentitions, viz., 11 per cent. in the poorer and 7.5 per cent. in the richer class school.

The following table is a brief summary of the collective results of the detailed investigation still in progress, and contains merely those figures which are of the greatest importance. In order to make this importance clear to the lay mind, the table is followed by a few explanatory remarks.

Table shewing the results of an examination of the mouths of 5,249 boys and girls in English and Scotch Schools with an average age of about 10 years.

Number of children examined	...	...	...	5249
Temporary Teeth requiring filling	...	...	6101	
" " " extracting	...	...	4192	
Total	...	...	—	10293
Permanent Teeth requiring filling	...	...	6970	
" " " extracting	...	...	3713	
Total	...	...	—	10683
Total Unsound Teeth	...	...	...	20976
Regulation cases in 2425 children over 8 years...				439
Sound Dentitions, free from caries	...	...		485

1. *Temporary Dentition.*—It is popularly believed that these teeth are not deserving of any particular attention, as in the natural course of events they must disappear to give place to others of the permanent set. While there may be some ground for this view, it is nevertheless true that much misery to children, as well as detriment to health, is avoided by intelligently watching and treating temporary teeth. This is not the place to set forth arguments upon this question, and attention is merely called to the fact that, in the opinion of qualified dental practitioners, 6,101 temporary teeth require filling; while 4,192 others, or the remains of them, either from being too badly decayed, or from being unduly retained (to the detriment of their successors) beyond the normal period, should be removed. The total number of temporary teeth requiring attention is at least 10,293.

(2) *Permanent Dentition.*—Between 6 and 7 years of age the first teeth of the permanent set may be expected to make their appearance. From their presence in the mouth along with the temporary teeth they

are, unfortunately, too often regarded as belonging to the first set, and thus their decay and loss are ignored, to the great injury of a complete dentition. Instead of being the last teeth of the temporary set, it should be borne in mind that the six-year-old molars are the first of the permanent set—most important teeth, not only for size and masticating function, but also on account of the position they hold in the jaws and in the series of teeth making up a full set. It is worth while then to pay the greatest attention to these individual teeth. After their eruption the temporary teeth are gradually replaced by the corresponding members of the permanent set, and at 12 years, and not until then, the second molars may be expected. It is, therefore, important that, at all events up to that age or period, the six-year-old molars should be kept in good working order, as presenting the only constant masticating surfaces during the change which is taking place between the temporary and permanent teeth. It is evident that between the ages of 6 and 12, inclusive, there are more than 6,970 permanent teeth which can, and should be, saved. By far the greatest number of these are six-year-old (or first permanent) molars.

(3) *Regulation Cases.*—With regard to cases in which the permanent teeth assume irregular positions (an occurrence which is recognised as one of the predisposing causes of decay, and frequently due to retained temporary teeth) out of the children over 8 years, approximately 2,425, the total is put down at 439 in which it would be right to take steps to remedy the condition, either by removal of certain teeth, or by the application of some mechanical apparatus. But there are several other cases in which the teeth are crowded and require subsequent inspection.

(4) *Sound Dentitions.*—Under this heading are enumerated those cases in which there was an absence of diseased teeth. Many of these were passing through the transition period between the first and second dentitions. Some children require merely the easy extraction of temporary teeth to place them in a satisfactory state, but it is, nevertheless, a fact which merits careful consideration, that out of 5,249 children's mouths inspected there were only 485 which required neither fillings nor extractions—not 10 per cent.—and that in all the others some condition existed which necessitated special attention in order to procure, as nearly as is possible, a healthy mouth.

There is an increasing recognition of the importance of systematic care of the teeth, apart from any æsthetic consideration. In the case of children, who during the growth of the body have not merely to maintain nutrition, it is surely a matter of urgency that all the organs of digestion should be kept in a state of functional integrity, and if, as seems to be the case, diseases of the alimentary canal are increasing, it is evident that any departure from the normal dentition places the child, the future adult, at a disadvantage. Instead of waiting until a child suffers pain, and thus directs attention to a decayed tooth, it is

far better for both patient and operator that the earliest appearance of caries should be noted, and the progress prevented by a regular system of inspection and prompt treatment. Under such circumstances dental disease and the necessity for painful operations are reduced to a minimum, and at the same time the function of mastication is retained in accordance with what is now recognised as the most beneficial practice. Referring once again to the figures, we would point out that 5,249 children have between them 20,976 unsound teeth, 6,970 of which are permanent teeth requiring filling. The economical aspect of treatment during the period of school life is of the highest importance, for caries is pre-eminently a disease of youth, and may be controlled then with the minimum expenditure of time and trouble. Sir John Tomes has well said, that the further development of the scheme for saving the natural teeth of the unmonied workers—a worthy purpose—cannot be attained by the dentists alone. It can be rendered effectual only by the joint action of the public and the dental profession.

By inviting the co-operation of those interested in school hygiene to a conference on (a) the paramount importance of dental hygiene and conservative dentistry during the period of school life, and (b) the best means of securing their general application, the President and Council of the Eastern Counties Branch of the British Dental Association hope to remove this question, one of national importance, from the comparative seclusion of a professional circle to a wider field of discussion.

Our Chairman has brought these facts so fully before you and in so attractive a form that I shall make it my task to illustrate the address to which we have just listened. It is more or less a case of thought-reading as I have had to prepare the series of lantern slides before hearing the address, and I think you will be interested when you have seen these illustrations, to note how far, without any pre-arrangement on the part of the chairman and myself, I have succeeded in demonstrating the main points in the address.

Before asking you to accompany me into the "dark chamber," I would invite your attention to one or two points affecting the public aspect of our work. In calling this conference together great difficulty has been experienced in getting, what we may term, lay members to attend; they do not see what they can say, nor what they can do, to forward the movement, however much they may sympathise with it. But what we dentists want to point out is that it is for the general public to discuss and act in this matter, while it is for us who are experts to supply the proofs of the necessity for, and the advantages of, timely recognition of ameliorable conditions. We place the history of the extent to which caries affects the teeth before them, and it is for the laity to apply the means of prevention. The not unnatural diffidence of the layman must not prevent him offering his opinion in the presence of an expert, who may often profit from seeing how the

matter strikes the lay mind. Then, with regard to the economical aspect of our proposals, I should like to say one word, because it is a point which the lay member is very quick to tackle. Their experience is that dentistry is expensive. They cannot understand that it is not the cheap dentistry constantly dangled as a bait by constant advertisers which is wanted throughout the land, but the true, cheap and economical dentistry which people have not yet got, and which they can only get when they have the intelligence of making better use of the dental expert. By a few illustrations later on I shall endeavour to make that point perfectly clear.

With regard to what Sir James Crichton Browne has suggested as to the action of the State in the matter, I may say that there is an interesting experiment now going on in the town of Rouen. There the Municipality have taken this matter up, and have appointed experts to supply dental services. They have a recognised system of inspection, and a regular system of oral hygiene which is recommended. Whatever people may say with regard to dentistry entailing expense, I maintain that no school authority, no school committee, no school superintendent, can assert that dental hygiene should be neglected on the score of expense. Therefore that part—the preventive part—that, at least, they can apply without the immediate adoption of our other recommendations. I will now ask Mr. Stokely to kindly throw the first of our lantern slides on the screen.

The first slide shows clearly the position and the function of our teeth. By the means of a longitudinal section through the head and trunk we see that the jaws armed with teeth form the walls of the mouth, which is the common entrance or vestibule to the organs of digestion and respiration. It is evident that the teeth form a very important part of the mechanism of digestion on which, as our chairman has so ably shown, our comfort and our energy so greatly depend. Although the mouth is not the proper channel for the inhalation of air, the teeth also constitute an important part of the mechanism of voice production, as is shown by the loss of certain teeth seriously impairing articulation both in speech and song.

The next slide illustrates what we may perhaps be allowed to term the æsthetic function of the teeth. It is obvious that if the subject of this picture had not possessed a good set of teeth the face would not have been really beautiful; and female beauty has been described by Oliver Wendell Holmes as so potent a factor in life as to entitle it to be ranked as one of the forces of nature.

The next slide represents the much neglected mouth of a child whose front teeth are hopelessly decayed. It is perfectly evident when this child grows up to be as old as the subject of our former picture, her smile will never entrance but only destroy any facial beauty of which she may be possessed. As age creeps on, her mouth can only present the hopeless ruin shown in our next illustration. Such hopelessly ruined, such functionless mouths, may and should be prevented.

This slide and the next show the extent to which the soft pulpy tooth germs are calcified at various ages. Although the temporary teeth are not completely erupted before two or even three years of age, the first set in our diagram shows that calcification of all the temporary teeth has been begun before the seventh month of embryonic life ; and the second, that that of the first permanent teeth has also commenced before or at birth, although it will not be erupted till about the sixth or seventh year. It is important to consider the life history of this tooth as it will not, like the temporary teeth, be cast off to be replaced by others. This first or sixth year molar, of which there are four, is that which suffers most from ignorance and neglect ; and of all the teeth its condition, more than any other, determines the efficiency or otherwise of the denture during the age of school life. Its growth and development extends from three months before birth to several years after its eruption in the mouth. What nature has taken so long to build up for the performance of an important function should surely demand all possible protection on our part from those preventable causes which lead to premature loss.

The preparations which show the amount of calcification of the anterior permanent teeth, at the age of 9 and 16 months respectively, are of great interest, because you will notice that the amount calcified often corresponds with the markings on teeth with defective enamel, such as are termed honey-combed teeth. Such defects are due to some constitutional or local disturbance of the process of development, and the nature of the markings is indisputable evidence of both the time and the duration of these interruptions, which usually occur during the first and second year of life. The preparation from a child of five years shows the remarkable increase in the process of tooth development.

The last preparation of all is that of the temporary or deciduous teeth removed by a careful and thoughtful father, a dentist of great distinction, from the mouth of his son, himself now a dentist, who is remarkable even amongst such as possessing a full set of thirty-two teeth. You will notice that while some of the roots of these have been fully absorbed, others have not ; thus showing the necessity of an expert presiding over this process of changing teeth.

The next slide shows two important stages in tooth development. The first illustrates an upper deciduous or temporary set of teeth, of which there are five on each side. The lower set consists of the same number of teeth similarly disposed, thus making a total of twenty. It is more important to remember the number and disposition of these teeth than their names or the periods of their eruption, which usually extends from the sixth to the thirtieth month. An easy way of fixing this fact in the memory, once and for all, is to remember that if we regard the fingers as representing upper and the toes lower teeth, the number and disposition of the temporary teeth to the median line of the body

exactly correspond with the number and disposition of one's fingers and toes. Each of these temporary teeth will in turn be replaced by a permanent successor.

In the second illustration, counting from the median line, we note the presence of a sixth tooth. This tooth does not belong to the temporary set, but is the first molar of the permanent set. It may make its appearance any time between the fifth and seventh years, usually about the sixth year—hence the name often given to it of the sixth-year molar. These molars are commonly supposed to belong to the first or temporary set, and therefore if found decayed, as they frequently are soon after eruption, are neglected under the erroneous supposition that they will be cast off and succeeded by others, like the milk teeth. They are not only the largest and most important of the grinding teeth, often the only constant masticating surface while the change is taking place between the temporary and the permanent teeth, but they are the teeth most frequently attacked and lost by caries. We, therefore, call attention to this tooth as the characteristic tooth so far as the period of school life is concerned.

Many people suppose that baby teeth have no roots, but a glance at our next illustration proves any such supposition erroneous. In the first row are three teeth of which nothing is left but the crowns, the roots having been removed by the natural process of absorption. If this process of absorption always took place regularly, the teeth would almost drop out, and there would be no necessity for the dentist's interference. The second row proves that sometimes only a part of the root or roots are absorbed, and the teeth may remain in position. The result of such undue retention of these teeth or roots may be deflections and irregularities in position of the permanent teeth which should come down in their place. Irregularities from such mechanical obstruction would be no indication of any cerebral condition except in so far as that might control the process of the absorption. In the third row we see the enormous and extremely divergent fangs which temporary teeth really often have. I do not hesitate to say that to take out such teeth, merely because of decay and its resultant toothache, is to inflict an unnecessary cruelty on the child, which might have been obviated by attending to the temporary, as one would to the permanent, teeth. Those teeth were never intended to be lost by decay. Due care and attention to the first teeth would not only prevent much pain but would ensure power of mastication, thus assisting in the better development of both the second teeth and the jaws, and the final dropping away of the first teeth by the natural, and not by the cold-steel, method.

The evil results which may ensue either from premature extraction or undue retention of the temporary teeth will be better comprehended by study of our next illustration, which is a lateral view of the jaws of a child of about six years of age. The outer plate of the bone has been

removed so that we are enabled, as it were, to look into the jaws of the child and see how the marvellous process of tooth development has been carried on. The intimate relations of the two sets of teeth are well shown, especially the divergent roots of the temporary molars embracing the crowns of the teeth which are to succeed them. Note the absence of any successor to the first molar (sixth year), with its completely formed crown and its still incompletely formed roots, and the second molar (twelfth year) only very partially formed and still lying enclosed within the jaw bone. In a front view of the same preparation, we get a better idea of the relations of the front teeth, showing the remarkable position of the canines; the relations indeed of the developing teeth are so confused that one almost wonders if it is really possible they can ever come into a regular position at all.

The next preparation prepared in the same way shows the transitional stage, in which the anterior temporary teeth are in process of being lost and replaced by their permanent successors. In the front view of the same preparation, the incisors, you will notice, present a serrated appearance. These notches and slight cusps will soon wear down, and are absolutely of no pathological significance.

The next slide shows very decidedly the disadvantage of the absence of dental supervision during school life. It represents the plaster cast of the lower jaw of a young man of 22 years of age. You will notice that the two lower central incisors are persistent temporary teeth, with their cutting edge on a much lower level than that of the other permanent teeth. This individual has a distinct lisp in consequence of this space between the front teeth, which moreover mars his appearance. A lateral view of the same mouth shows well the loss of masticating power from the undue retention of the upper second temporary molar, which is stranded with its grinding surface on a level with the necks of the permanent teeth on either side.

In advocating measures of tooth preservation, the question arises, what is the organ, what is the unit we have to consider? I am afraid that even we experts have sometimes rather gone astray on this question because the tooth has been regarded as the unit. Now the unit is not the tooth, it is the denture; and the teeth are but as it were the fractions, not all of equal value, which make up the unit. The problem for the dentist becomes not whether this or that tooth can be saved or not, but how a good functioning denture can be best ensured, preserved, or restored.

The efficiency of the masticating apparatus very greatly depends upon maintaining the integrity of the dental arches. Very fine examples of these are exhibited in this and the next slide, the one representing the upper and the other the lower jaw. You will notice a difference in the curves which permits the upper teeth to close over and slightly cover the lower teeth. In the next slide the relation of the jaws with their full complement of thirty-two teeth to one another

is very beautifully shown. With the exception of a very slight irregularity in the lateral incisors this denture is perfect in the form, number, and quality of the teeth. With the exception of two front lower and the upper wisdom teeth each tooth occludes with the teeth in the opposing jaw. Such a good set of teeth is so exceptional that I feel certain that there is not one like it amongst this audience. Here is the sixth-year molar ; and it is certain that, should it be extracted on account of decay, its removal will affect the position of the neighbouring teeth and constitute a permanent breach in the continuity of the masticating surface. In order to make this space close up, the opposing tooth should be taken out, even were it perfectly sound. Experience has shown that in this part of the denture, when at all normal, the best results possible in such circumstances are insured by the extraction of either a pair of teeth, or, more frequently, the whole set of four. In our next slide we have two diagrams showing the upper and lower jaws in occlusion and open, from which it is clear that the action is not a simple hinge movement. The action of the lower jaw in closing on the upper jaw is an example of a compound lever bent so that the fulcrum at the joint is very considerably raised, thus giving a powerful shear-like action.

The nature of the surfaces of the teeth and the character of the joint is such as to permit of considerable motion of the lower on the upper jaw, both from side to side, and from behind forwards. The masticating organ is therefore of the omnivorous type, since it includes all the movements which characterise the carnivorous, ruminant, and rodent types.

Any cause which interferes with these movements detracts from the efficiency of the masticating organ. An irregular position of the teeth, as shown in our next slide, is a frequent cause of such interference. It is perfectly obvious that such a denture is much more difficult to keep clean than the regular normal arch previously exhibited, and as we shall presently see, thus renders the teeth more liable to decay. These irregular conditions may be treated and rectified, but only with the greatest economy if undertaken during the middle or later period of school life.

In considering how teeth are lost, we must first understand the structure of a tooth. As you see from this diagram, the bulk of a tooth is made up of ivory or dentine, which is merely a peculiar form of fine hard bone. The dentine encloses a cavity, corresponding to the general form of the tooth, which is filled with a soft pulp of fine tissue rich in minute blood vessels and nerves.

On the outside of the dentine beginning just below the gum, is a covering of dense hard porcelain-like enamel, covered with a hard glaze which has a great power of resisting acids. The enamel forms, as it were, a kind of armour for the much more vulnerable dentine. Faulty structure of the teeth is the most important of all the pre-

disposing causes of dental caries. Just as a lump of table salt dissolves more rapidly in water, on account of its porosity, than an equally large piece of rock salt, porous, or poorly calcified, dentine is more rapidly decalcified than well developed hard resistant dentine, because acid can more rapidly penetrate the tissue, and less acid is required to complete the decalcification. In some cases, as this slide very well shows, the armour or the enamel may be very defective, with little of its usually great power of resisting acids. The dentine, too, as shown here under magnification by the microscope, is liable to faulty development in the shape of interglobular spaces which lessen its power of resistance. Such facts enable us to understand how one individual may occasionally keep nearly all his teeth without decay to a relatively late age, although ignoring all hygienic care of the mouth, while another may have nearly every tooth affected with caries despite the most scrupulous dental toilet.

Our next illustration shows the various forms of bacteria which are found in the human mouth, while yet another illustrates well what our chairman said about the marvellous rapidity with which they increase in number. As shown in this diagram they may proliferate by simple fission, that is, by splitting up in one, two, or even three directions, so that under favourable conditions a single germ may give rise in two or three days to billions. These bacteria found in the mouth have the power of producing acid, but they must have something from which to produce it. That something is the food which lodges about the teeth. Our Chairman's remarks as to articles of food are borne out by our next diagram, which gives the result of some experiments to show the amount of acid formed under similar bacterial conditions in a given time from different articles of food. We see that from sugar, rice, macaroni, and especially bread, a considerable amount of acid was produced; while from meat, fish, and eggs, none was produced. The potato shows well the effects of cooking, as when raw no acid was produced, yet when boiled it yielded 24 and 75 acid units in twelve and thirty hours respectively.

The next slide shows very well the enormous number and the great variety of bacterial forms found in the human mouth. Although this preparation consists of the thinnest possible film from a platinum needle which was passed between two teeth in a not uncared-for mouth, the bacteria are so crowded together that in parts they form such dense masses that their individual shape is altogether lost. It is very evident, therefore, that the mouth is a very favourable incubating chamber which is not monopolised by the organisms producing caries, since almost every organism associated with disease of man has been found growing there. As Dr. G. S. Woodhead well remarks in his book on *Bacteria and the Products*, "It should be mentioned in the interests both of antiseptic purity and suffering humanity that a good stout tooth brush, plenty of water, and some antiseptic dentifrice

applied morning and night afford a greater safeguard against many diseases than most people are aware."

Our next illustration is a diagram showing the section of a bicuspid and two molar teeth and surrounding structures. This diagram shows the vulnerable points in the armour-like protective covering of enamel, viz., the fissures in the crowns of the teeth and the spaces between contiguous teeth which favour the lodgment of food.

The next slide is exactly similar except that it shows several different stages of caries. Here, where the food has lodged between the teeth, fermentation with the production of acid has taken place from the action of the bacteria, thus leading to the first stage of caries in which it only affects the enamel. In another part of the diagram we see that the action of the micro-organisms has extended into the dentine, thus forming the second stage. Progress is now more rapid because the albuminous substance contained in the dentine is an excellent medium for the growth of bacteria. In the third stage, we find the process extending to the pulp or so-called nerve of the tooth, when a fresh activity usually characterises the bacterial action, leading in the fourth stage to destruction of the entire pulp, probably infection of the membrane surrounding the tooth, and finally abscess.

In the next slide an attempt has been made to depict the operations necessary for the relief of these different stages of disease. In the first or second stage the treatment is very simple, requiring no great endurance on the part of the patient. The softened and damaged tooth substance is carefully and thoroughly removed, and the cavity so shaped that it will retain a filling of suitable material which will preclude further access of moisture and bacteria. Very frequently the patient is utterly unaware of the existence of such cavities, as they give rise to no very serious pain until the disease is in the third stage or close upon it. The economic advantage of treatment in the first or second stage is therefore evident, and explains the necessity for periodical inspection of the teeth by a competent dentist. When caries has been neglected till it has entered on the third stage, usually characterised by severe tooth-ache, the most favourable time for filling has passed never to return, since its treatment entails a much more complicated operation, either to preserve the pulp—often a hopeless one—or to destroy it. In the latter case, and also when the fourth stage of caries supervenes—a dangerous stage, since a longer or shorter absence of pain conveys a false sense of security from further trouble—a long operation is necessary since the pulp cavity and canals must be thoroughly cleansed, sterilised, and filled even to the end of the roots to ensure its retention for any length of time in comfort.

One cannot help thinking, especially as one grows older, how much easier our professional lives would be if we were occupied in treating simple cavities of the first and second stage, and had little or no need to practise these much longer and more complicated operations necessary in the third and fourth stages of caries.

If decay is neglected in the fourth stage, the infection will probably extend from the interior of the tooth to the membrane covering the root and lining the bony socket, by which a violent inflammation is set up ending in an abscess. Such a "gum-boil," as shown by this photograph, not only distorts the individual's appearance, but causes intense agony and may totally disable the patient for several days, being for the time quite a serious illness. Through still further neglect or injudicious treatment, the passing "gum-boil" condition shown in our last slide may become chronic, discharging outside on the cheek, as shown in this slide, disfiguring a pretty girl for life; for, even after the healing of the fistula by removal of the cause, an ugly scar will remain.

Our next slide illustrates what our chairman said as to the necessity of thorough cleanliness and aseptic conditions of dental instruments and appliances. That is one thing which we can and do control thoroughly. Some of the public do venture on going into places where they cannot be sure of this care, thus unconsciously exposing themselves to great risks. Here, for instance, this poor man died from the result of simply going up into the golden chariot of an itinerant quack to have his tooth taken out. Blood poisoning followed soon after the extraction, and after lingering in the hospital for a few weeks death ensued.

To return to the period of school life, the paramount importance of attention to the first molar is well illustrated by this diagram of the relative number of teeth erupted and carious in the upper jaws of over 600 children in a school near Leeds. By the line showing the eruption of the first molars, beginning about the fifth year, we see that 50 per cent. were erupted soon after the sixth year, and 90 per cent. soon after the seventh year, the full 100 per cent. not being reached until the age of $9\frac{1}{2}$ years. By following a similar line showing the eruption of the central incisors, we see that it runs a somewhat similar course, only a little later, and thus encloses an area on the diagram which does not differ much in size from the area enclosed by the first molar line. From this graphical representation of the life history of these two teeth we see that here we have two teeth in the same mouth or incubator exposed to the same bacterial conditions—in other words, two teeth nearly equally exposed to the intrinsic causes of decay. Now, what is their history with regard to caries? As shown by the dotted line, decay had begun almost simultaneously with the appearance of the first molar, so that by the sixth year 25 per cent. of the teeth erupted were decayed, by the seventh year 50 per cent., until by the time they were all erupted nearly 70 per cent. were more or less carious. On endeavouring to represent in a similar manner the amount of decay in the central incisors, the dotted line was so close to the base line as to be scarcely visible. It was only by massing the decay in all the other teeth that it was possible to get a graphic repre-

sensation of the amount of caries present, and which, after all, only amounts to a very small percentage. In this diagram, which represents the condition in the lower jaw, it will be seen that the area of the diagram enclosed by the eruption lines of the first molars and central incisors represents even less difference between them than in the case of the upper jaw. Their history, however, as to their relative liability to caries is very much the same, except that a still greater percentage of the first molars are decayed, for, as we see here, at 11½ years, 88 per cent. were decayed. This striking contrast in the liability of the first molars to be carious is due to defective formation of enamel in the crown and to contact with carious temporary teeth, and shows in the strongest possible way that, if these important teeth are to be saved at all, it can only be done during the earlier part of school life. It should be stated that a large proportion of these teeth were in the early stage of caries, and that the teeth in this school were very much worse than most of the others examined, as shown in the next diagram.

This is a graphic representation of the ratio of carious permanent teeth per 100 children to the average age in a number of schools in different localities. It is a pictorial representation of our first tooth census which comprehended the examination of over 4,000 mouths. In some districts we see there is relatively little decay, and in others very much. This opens up a very interesting question which the Government might well take up, and enable us to give a reliable tooth census for the whole country. It might result in our acquiring information which would enable us to ensure a better quality of tooth structure to the rising generation.

Of the forty schools included in this investigation there were only three which had a dental officer attached to the school who had not restricted his professional services to merely extracting teeth. In these cases the ratio of defective teeth was considerably reduced. I shall only mention details with regard to one school, viz., the Metropolitan and City Police Orphanage, an institution managed and mainly supported by members of the force themselves. The conservative efforts of the dental officer reduced the ratio of defective teeth over 40 per cent. These investigations have almost entirely been confined to children of the poorer class, but what little evidence was furnished by better-class schools seems to indicate that those children are still worse off so far as teeth were concerned. For instance, a comparison of the ratios of originally defective permanent teeth in two Edinburgh schools, Donaldson's Hospital and John Watson's Institution, shows that the former, recruited from a poorer class, by its ratio of 158.2, contrasts very favourably with the latter, recruited from a better class, with its ratio of 273.9 at the same average age. The general conditions of life as to diet, situation, habits, &c., are as nearly as possible the same in both schools. The absolute determination of such a question is important for the welfare of the community. It is, therefore, a State

question for which State help might well be granted. At present the investigation is being carried on at enormous expense, because the examinations are conducted by highly expensive talent. It is uncertain in its progress because it is dependent on the enthusiasm and self-sacrifice of a few members of a profession whose time is extremely valuable. It is less accurate than it might be, because of the various idiosyncrasies of a number of volunteer examiners. The investigation could be carried out more accurately in less time and at less expense were a few qualified and paid examiners appointed to different districts. This would require State or at any rate public assistance. If the public at large could only be made to see the practical advantages that would accrue to the general health of the community by bringing home to each member of it the necessity for intelligent measures of prevention of dental caries and for making a more intelligent use of a highly skilled profession in its relief, such help would not long be wanting.

Mr. R. DENISON PEDLEY said : Mr. Chairman, as dental surgeon to a children's hospital in a very poor district in London for some years, I have had special opportunities of seeing the disastrous effects of carious teeth upon the children of the poor. The amount of physical suffering is great ; the nervous system is irritated ; mastication is impaired ; nutrition of the body is retarded, and development is to a large extent interfered with. Now these statements have been made, only in a different form, far better than I can make them, in our Chairman's address, and Mr. Cunningham has shown you by his magic lantern certain points better than I can tell you. But there is one simple fact I would bring before your notice, worthy of the attention of all medical men. I have examined within the last eighteen months 400 children in the wards of our hospital. These children did not apply to me nor seek relief on account of their teeth. The result of my examination has been this : that out of 400 there were only 26 healthy mouths. Now I cannot associate these things. I cannot say, "Here is the cause, and here is the effect." I cannot say, "because these teeth are carious this child is lying here with hip disease." But it is obvious to anyone who cares to know, and especially to those who have looked over the records which have been placed before us, that such a condition of affairs all tends towards one thing, and that is the lowering of the vitality of the child's body. Thus in these cases you have a very fruitful soil for all sorts of diseases only too ready to take root and spring up, whenever they get a favourable opportunity. From the work I have been engaged in, I should say that it is very difficult to separate this question of poverty of teeth from the question of diet. I have been often astounded at the wonderful ignorance displayed by parents of poor children who have come under my notice. Our President has spoken in his address to-day on ethics, as to the advisability of teaching our patients. I thought

at the time he mentioned it he would laugh at me if he saw my efforts to sometimes educate the parents of my patients. I commence by pointing out that milk is the staple food for a child, and not tea. I tell them they must drink no beer at all, and then I ask them if they can get any oatmeal, and tell them how to cook it. I try to point out to them that good and wholesome food is very cheap, and by getting a few bones and some vegetables they could make a beautiful stock at a very small cost, and be able to supply a child with an ample meal. The curious part of this condition is the fact that in the cases I have looked into the mothers as a rule are very well able to buy good food for the children. It is not poverty ; it is ignorance.

Having had some experience in these matters with regard to children, I have been called upon to try and take an interest in this work of the poor, and I have very readily done so. During the last fifteen months I have been engaged in examining pauper children in the Metropolis. I may say that we have ten thousand pauper children in the Metropolis. These children, let me remind you, are not the pauper children we used to have fifty years ago ; they are not the kind—ill-fed and always hungry—which we find so well represented in Dickens' novel, "Oliver Twist," when it was a crime for which poor little Oliver had to go up before the Board because he asked for "more." No ; to-day there are beautiful schools erected, and a large amount of money is spent upon the welfare and the well-being of these children. They are recognised as an important factor in the State, and, as the Chairman has very well said, the Guardians stand in the position of parents to these children. Well ; we have had during the past fifteen months to examine some three thousand of these children. I may tell you it is not easy work ; it is very arduous work, but we know we have a good cause at heart, and therefore whatever discouragements we may have had we have tried to do our best. We are not without encouragement, however. My colleague, Mr. Sidney Spokes, and I, examined nearly a thousand children at Hanwell. We sent in an exhaustive report to the Board of Management. As a result, they unanimously decided to act upon the basis of that report, and sent it up to the Local Government Board, where it was approved. Now, I am happy to say, one thousand children will be examined carefully and treated every year—children who never before knew the use of a tooth-brush. As there are some ladies present I would like to mention one fact which may interest them. I am very often asked, "Well, we know where the pauper children come from, but where do they go to ?" That is an important question, and that is where the importance of our work comes in. Within the Metropolis last year 450 girls from our pauper schools, about the age of sixteen, we will say—I think that is the time they are sent out—entered domestic service, and nine out of every ten—I think I should be right in saying nineteen out of every twenty—had never been taught how to clean their teeth, let alone having them

attended to. I think ladies as well as gentlemen know that we cannot do without servants, and that they very often have to suffer an immense deal through not having their teeth properly attended to, apart from the fact that we have great difficulty to deal with them when they do require attention. There is only one other fact I want to mention, and it is this. I have lately written to the Chairman of the London County Council for permission to examine 750 boys in the Reformatory Schools at Feltham, in Middlesex, and I am happy to tell you I have received a kind letter stating that they would be pleased not only to afford us facilities for examining all those boys, but they would be glad if we will supply them with a brief report of the condition of the children when we have examined them.

Dr. WILBERFORCE SMITH said : From a physician's point of view, I take much interest in teeth, and examine them in the case of nearly every patient who comes to my consulting room. This interest is of no recent birth. After long noticing the disastrous amount of decay which constantly goes on in people's mouths, I arrived about seven years ago at the point of tabulating precise facts. My ambition is to get a thousand or more cases having no relation to dental or even to medical practice, and thus to arrive at a precise estimate of the destruction of masticating capacity amongst the general population. Thus far I have succeeded in testing some 250 cases. I may mention one or two points of interest in two small groups last taken. Thus a dozen of the Horse-guards were brought to my consulting room the other day. Their mouths, like other people's, showed the ravages of caries, and on enquiry of their corporal I could not elicit that any attention whatever is given to the preservation of teeth in the army. Then a few evenings ago I examined the mouths of twenty-five to thirty girls in the North of London, mostly employed in warehouses and factories. As usual, all were affected by caries, most had suffered extensive loss, and in no instance was there evidence of conservative dental treatment. The 250 cases referred to have been examined solely in view of the medical value of grinding pairs of teeth. The incisors and canines which in modern life have their function largely replaced by knives and forks, I have not counted, although you, Sir, have to-day shown that they are not unimportant even in a medical aspect. The æsthetic value of front teeth and their consequent indirect effect upon health to which you have alluded, is not to be denied, but finds no place in my tables. Disregarding æsthetics, I have taken the hygienic aspect in its primary form, and collected evidence as to molars and premolars, counted not in singles, but in pairs. From the physician's point of view a single tooth, molar or premolar, which is without an opponent, is as useless as a single blade of a pair of scissors. I have counted fractions of pairs where partial opposition has existed, and have done my best to estimate opposition aright and to eliminate difficulties caused, for instance, by subjects of investigation setting their

teeth wrongly. Certain other fallacies ought to be guarded against in these as in other anthropometric observations. Our best endeavours should be employed to hinder the operation of that which I may call the principle of Self-selection, that is to say, against allowing individuals to choose whether they will or will not undergo examination. Because the truth is, the fittest persons are those who prefer to be tested. For instance, in the matter of colour-blindness, the proportion of colour-blind persons amongst those tested at the British Association meetings is abnormally small. This doubtless happens mainly because those who know themselves to be defective do not present themselves. In like manner those who know their teeth to be badly decayed are unwilling to come forward. One should do the utmost to obtain whole groups. And after all, my own results, bad as they are in showing destruction of grinding pairs, are better than they should be, because, notwithstanding all persuasion, a few members of certain groups evaded examination. But with trifling exceptions, I have succeeded in obtaining complete groups. A series of out-patients (all successive cases) form the only exception to the rule that my cases have no relation to medical practice. The state of general health amongst medical out-patients is, I believe, on the average but little below that of the working classes in general. Those who have time to attend the out-patient room are not without social advantages. They represent the more leisured working classes, and their prevalent ailment is, according to my own observation, a neurosis characterized by morbid craving for drugs. In any case the detailed tables which I hold in my hand show that the loss of masticating capacity in them closely resembles in amount the loss suffered by a large group of shopwomen not derived from medical practice, who contribute to my tables.

Now an investigator's figures are very tiresome, and I have for the purposes of this meeting put my earlier results into diagrams, for the rough execution of which I must apologise. In these diagrams are shown exclusively molar pairs in red and black rows. I need hardly say that premolar pairs would show some degrees less of the destructive process, nor that teeth thus counted in pairs necessarily show worse than if counted in singles. Single teeth placed *hors de combat* by the loss of their opponents have not been counted at all, for the reason that they are no longer valuable for mastication. In endeavouring to represent diagrammatically the normal number of molar pairs at several age periods, I have left myself open to correction by experts present in this meeting as to the allowance made for the completion of pairs of wisdom teeth. In this row representing molar teeth pairs and fractions of pairs lost are represented in red, and those retained are shown in black. Accordingly it is seen that at 15 to 20 years, taking both sides of the mouth, two molar pairs and a small fraction (2.15) are retained; at the age period 25 to 30 years, two molar

pairs and a smaller fraction (2.04). At the age period 25 to 30 years, the effect of the complete eruption of the wisdom teeth appears to improve the result a little, and there are retained nearly two and a-half molar pairs (2.47). At 30 to 40 years we have one and a fraction (1.40) molar pairs. At 40 to 50, less than one molar pair, represented by the decimal .75. Thus at the age period last given, whilst still in the prime of life, we are reduced to a fraction of one pair, and may be reminded of Hamlet's words, "the sickly part of one true sense."

The influence of sex as shown by these records is comparatively small. It occurs that groups of women have proved easier to meet with, consequently more females than males are represented. But at such points in my figures as comparison can be fairly made, there is but little difference attributable to sex. Males show slightly better than females. This second diagram shows the difference between the favoured and less favoured classes, so far as my figures at present serve. The favoured class is furnished by the pupils and teachers of schools, one in the north of London and another in South Kensington. It is seen that they show a little better than the less favoured. The former class in the age period from 15 to 30 have 2.35 molar pairs, counting both sides of the mouth, against the less favoured, who retain 2.15. This early loss in both classes of about half the normal number of the most important grinding pairs is, I think, very disastrous.

As to prevention, what I am accustomed to advise my patients is that they should brush the teeth at bed-time, then during the whole night the teeth will be practically clean and their microbes starved. When the mouth is cleansed merely in the morning, the microbe is again richly fed by the residue of the breakfast of its host.

Further as to causal indications: I was delighted to hear you, Sir, speak on this point. I had been unaware that any distinguished member of the medical profession had been alive to its importance. The central cause of caries is, I believe, that we do not polish our teeth. Here is a lower jaw of a savage—the first I could obtain on hurriedly calling at the Anthropological Institute this morning. It is thus in no way selected to show the condition of the teeth. It is presumably the jaw of an ancient Briton. It well illustrates two characteristics of the teeth of uncivilised persons ancient and modern. The first is that the teeth are regular, handsome, well opposed, and admirably preserved; there is no vestige of caries. The second characteristic is that the cusps of the teeth are worn down, and present a level polished surface, obviously produced by habitual mastication of tough and hard substances. Then I have brought this modern jaw from my own skeleton cupboard by way of contrast. Caries, though present, is not characteristic in amount, for osteology dealers, as is well known, select their specimens and perform operations of transplanting teeth. But what the teeth do show, is that the cusps are, as usual, in modern specimens,

preserved in their childish form, not having undergone the process of levelling down by wear and use.

The causes and the prevention of caries receive a flood of light from consideration of such specimens. The tooth-brush is good, but our savage had none ; his mouth, again speaking, tells that mastication is better. We need food that daily grinds and polishes our teeth and requires thorough mastication. The domestic loaf here assumes no trifling importance, and I trust I may be excused for producing an actual loaf which I think fulfils ideal and practical requirements alike. It was prepared this morning according to the following recipe :—Let all the crust be cut off the loaf, and eaten whilst crisp and new. Let all the crumb be “pulled” into pieces about the size of rusks, placed in a “moderate” oven, dried and lightly browned. If not all consumed, the remainder of this domestic “pulled” bread may be kept crisp in a covered jar or biscuit box.

Then to take a side issue. How is digestion affected by thorough mastication and consequent insalivation of starchy food? We have a modern medical theory that insalivation is of little consequence, for farther down the digestive canal, the pancreatic secretion is richer than saliva in the property of transforming starch into maltose, glucose, or other saccharine product ; yet the inference that insalivation is of trifling consequence is wholly opposed to my own consulting-room results, elicited by such a method as abdominal percussion. I constantly find intestinal fermentation, with its secondary evils, associated with neglect of insalivation, and remedied in great part by means that secure it. Theory is worth little compared with clinical experience. But I will offer a theory for what it is worth. There is in the digestive canal an alternation of acid and alkaline secretion. First we have the acid secretion of the mouth during fasting, succeeded by the alkaline saliva poured out on taking food ; next, the acid gastric juice ; lower down the alkaline pancreatic secretion, and so on. It has been shown, especially by Dr. Ringer, that acid secretion is stimulated by the presence of alkali, and *vice versa*. It may well then, as a matter of theory, be rightly questioned whether the chain can be interrupted with impunity, and starchy food swallowed whilst imperfectly insalivated. But, whatever the theory, I have accumulated clinical evidence that few persons can do it without impairment of digestion. Throughout pathology the principle holds that neglect of function leads to loss of structure, and this principle is the key to the preservation of our teeth.

Mr. SEDLEY TAYLOR said : The chairman not only represented as far as I could understand the great professional part of the subject, but has so completely touched upon everything that he has really left one nothing to say. However, I feel anxious that the poorer classes should in some way obtain the same comfort throughout their lives from dental advice that the richer classes are enabled to.

Dr. WALKER said : I will not occupy your time long. My friend Mr. Cunningham has asked me to speak on the practical part of this question. I have worked twenty years at a public school, and tried to carry out Mr. Cunningham's theory. I first attended casually. It is now the rule of the school for every new scholar to be examined by the school dentist. I examine some 130 or 140 patients a year, and I am sorry to tell you that the percentage is very low indeed as to perfect dentition. I may say that the boys with perfect dentition come from districts where hard water is drunk. I have had the pleasure of seeing some cases of perfect dentition—no caries, no irregularities, the enamel thoroughly hard and dense, and the dentine of the same colour as in the old times, and not the transparent blue we see in the present day. I have also attended the children of the poor in Westminster, and the students at such places as Marlborough College. I can quite carry out the statement that there is no great difference in the condition of the teeth of the poor in Westminster and the condition of the teeth in the mouths of the students at Marlborough.

The practical part is this : that at Marlborough College, having obtained a circular from the head master, I examine every boy's mouth, I make a faithful report, and state what I consider a conscientious fee for thorough, fair, and just work ; that is passed into the hands of the house master. At the bottom of the circular an answer is required of the parents whether they will have the work done at home, by their own dentist, or whether they wished the school dentist to undertake it. A simple register is thus kept of the condition of that boy, and if he is not attended by a regular dentist, a simple note to that effect is sent to the parent suggesting that such attendance should be given. I have thus no friction with dentists in any part of the country ; in fact, I may say that for the last five years I have had their cordial co-operation. That is the practical point I wished to lay before you. The satisfactory result of such treatment is that the resident medical man assures me that the percentage of his attendance is thereby reduced quite 15 per cent. The boys, as a rule, in that college grow in stature and in breadth, and in a healthy and intellectual condition. I may say that the boys who have very carious dentures suffer also from congested mucous membrane of the mouth. If you want to save teeth, let it be your first study to put them in order with the assistance of the medical attendant ; never try to treat the teeth alone, but see that the mucous membrane of the mouth is thoroughly healthy and uncongested.

Mr. SMITH TURNER then ably summed up the points which had been dwelt upon by the various speakers in the discussion.

Mr. CUNNINGHAM : Mr. Chairman and Gentlemen, I have nothing more to add except to say I share the feelings which have been so ably expressed by our President. When these transactions will appear in our Journal I feel convinced you, Sir, will have given

an enormous and much-needed impulse to a movement which is bound to go on. The importance of that is rendered more striking by a little fact. At the last International Congress of Hygiene and Demography I presented a paper—not the one you have heard about, but another paper—in the section dealing with infancy, childhood and school life. I spent a great deal of time on its preparation, and I was loyally at my post at the appointed time waiting to be called upon to read it, but I am very sorry to say that a splendid opportunity was lost. My paper was ruled out principally because the executive did not understand that this question of dental hygiene was of the importance it is. Your coming here to preside over this Conference to-day is a grand answer and reply to that, and to our claim that no system of hygiene is perfect which neglects dental hygiene. It is a necessary part; it also shows the necessity of educating people on this question. It is only by that means we can get any great improvement. I have to move a vote of thanks to Professor Liveing for having given us the use of this noble lecture-room and excellent electric lantern, and also for allowing me to have the very valuable services of Mr. Stokely in the demonstration with the lantern.

Mr. R. DENISON PEDLEY seconded the motion.

Mr. SEDLEY TAYLOR moved a vote of thanks to Mr. Cunningham for the immense amount of labour he had undertaken in connection with the Congress, and the initiative he had taken in the matter.

Mr. BRUNTON (Leeds), in seconding this motion, asked to be allowed to correct a statement made by him that 90 per cent. of the teeth in the Leeds district were carious. The statement was made before this movement was thought about, and was simply one made to Mr. Fisher, of Dundee, in answer to a question of his, and was based on no examination whatever, simply as a personal opinion, his reason for speaking on this point being that the President had quoted it in his address.

The PRESIDENT, in replying, said that he had had great satisfaction in being present, and felt quite sure that they were inaugurating a national movement of some importance.

APPOINTMENTS.

T. A. COYSH, L.D.S.Eng., Dental Surgeon to the Liverpool Dental Hospital.

W. H. GILMOUR, L.D.S.Eng., House Surgeon to the Liverpool Dental Hospital.

ORIGINAL COMMUNICATIONS.

The Application of Electricity to Dental Purposes.*

By W. BROUGHTON, Manchester.

ELECTRICITY, the mystery of the past and the hope of the future, is rapidly becoming subservient to the multifarious requirements of the dental profession, and needs no apology for its intrusion here to-day. It will be my endeavour to fulfil the commands of our worthy hon. sec., Mr. Paterson, to make the subject as interesting and intelligible to the badly informed amongst you, as far as my limited abilities will allow me, for it is not in mortals to command success, but I will try and deserve it. At the outset, allow me to disclaim any profession of being an electrician, but rather as an investigator seeking to evolve facts, by actual practice, from the many systems which have been recommended as solutions of the difficulty which is experienced in the application of electricity to dental practice, under the varying conditions and situations of every-day practice.

Our hon. sec. intimated to me that there were very few people who understood the meanings or values of electrical terms. It will be necessary for me to enlighten you on that point by a short lesson and demonstration on the terms ohm, volt, and ampere, that you may the more fully understand the relative costs of working the various instruments which I shall have the honour and pleasure to show you.

The ohm (symbol R) is the resistance offered to the passage of a current of electricity of one ampere, by a copper wire of 95 per cent. of conductivity, 10 feet long and .01 inch in diameter weighing two grains per foot.

The volt (symbol E) is the unit of electromotive force which will pass a current of one ampere through a resistance of one ohm. It is analogous to the lbs. pressure in a steam boiler or water main, and is not dependent upon the size of the cell for its intensity, but upon the affinities of the electrodes or plates, and the electrolyte or exciting fluid for each other. We have here an instrument used in measuring the intensity of current, and is called a volt-metre. This we will now connect with one cell of an accumulator

* Read at the Annual General Meeting of the Association, held at Manchester, August, 1892.

which has, when fully charged an E. M. F. of 2 volts gradually increasing cell by cell until we have a current of volts. Without sufficient voltage we cannot render the carbon filament in the lamp incandescent. The current from four cells just reddens the filament, it will require 10 volts to reach its proper incandescence, whilst an excess will probably end in total collapse in a very short time. It has taken 20 volts to accomplish this. A word in passing re lamps; always be careful to ascertain their voltage, and never attempt to push them beyond their limit and then blame the makers for your blunder.

As a comparison for voltage I give average volts of three well-known types of batteries, viz., Leclanche $1\frac{1}{2}$ volts; Daniell 1 volt; single fluid bichromate 1.9 to 2 volts, according to the strength of electrolyte.

The ampere (symbol C), is the unit of current per second, and represents the gallons of water passing per second through a given size of pipe. In primary and secondary cells it is proportional to the surface of plates exposed to the electrolyte.

This instrument is called the ammeter, and is used for measuring the quantity of the current. Its use will be self-evident when we come to a trial of the motors. Watts = amp. \times by volts.

The electric current for dental purposes is at the present time principally derived from two sources, viz., primary batteries and secondary or accumulators, but no doubt in the future we shall have it delivered from a main, ready to be converted into light, heat, or power.

Primary batteries are those wherein one or more chemical substances act upon two differently composed plates, causing a decomposition of one of them. At their best, batteries are not an economical source from whence to derive current, but where other sources fail, we must be prepared to adopt them if necessary. It is not advisable for me to recapitulate my failures, though interesting, the time at my disposal not being sufficient for that, but rather to exhibit the latest and best methods suitable for your adoption.

To this end I shall first call your attention to the Cuttriss system of Daniell gravity batteries as arranged for re-charging accumulators, as coming more near my ideal of a constant electrical supply without the trouble of re-charging, except at long intervals.

The battery consists of a glass cell, in the lower portion of

which rests a strip of copper on its edge, bent in the form of a star, to which is attached a gutta-percha covered conducting wire, forming the + pole, the - pole being a grid of zinc suspended from the top of cell by means of a strip of vulcanite, the electrolyte here being sulphate of copper, depositing pure copper at the + plate liberating H_2SO_4 , which attacks the zn. or - pole; the E. M. F. of this cell is about .9 to one volt. The series of six cells I show working have been running continuously night and day for the past month—in fact I have made them my slave. Mr. Cutriss kindly sent them down for me to experiment with, so that I might have actual practice ere they were publicly exhibited for the first time. My first task I set them was to re-charge an old accumulator of four cells, which had fallen to 3 volts; at the end of the second day they had recovered their normal voltage, 8 volts. To re-charge four cells it would be necessary to have ten or twelve cells, but by charging two cells one day and two the next five are amply sufficient. You must always have the charging current in excess of the accumulator. When the accumulator is fully charged, the action stops in the gravity battery, to be again called into action when the current has been reduced; the small switch which I have made having three studs, to which are attached three wires, the extremities of which are connected to the first, third, and fifth terminals of my accumulator, the two leading wires from the gravity cells being attached to the movable arms, the positive wire being attached to positive of accumulator, negative wire to third terminal which becomes the negative of second cell, but which, on the switch being removed to opposite side becomes + to next two cells. A simple movement of switch once a day being all that is required, by clock-work this can be made automatic. Mr. Cutriss has had one running for three months without any attention.

Of the primary batteries, genus bichromatus, the less said the better, for I do not wonder at the disgust expressed by those who have had to perform the operation of re-charging.

The next source of supply to which I shall invite your attention is the dynamo, but shall not enter into the details of its construction nor varieties of the same.

The dynamo is certainly the cheapest source of electrical energy, particularly when driven by water power, that is to say, where there is a fall of water available, but do not run away with the idea that I mean the power as supplied by the Manchester Corporation, which is powerful enough but too expensive for the

purpose. The next best for large supplies is steam, but as this is out of the question for the majority of us, our next best friend is the gas engine, and this, by the kind assistance of Cutriss, Wallis & Co, of Leeds, I shall be enabled to exhibit, working in my demonstration room a small engine and dynamo which they have constructed for small powers, the engine being $\frac{1}{2}$ -horse. The dynamo has an efficiency of 20 volts and 4 amperes.

A larger plant for domestic lighting, &c., is exhibited by the National Gas Engineering Co., and the Roper Electrical Engineering Co., of Bradford, which I am having fitted to my residence. The output of the machine is 12 amperes and 65 volts. I had it running on Tuesday night for the first time, with so far very satisfactory results.

The accumulator as a storage of energy next claims our attention, and for general purposes I have found none better than the E. P. S. V. type. It has a capacity of 16 ampere hrs. at a potential of 8 volts, with a discharge of 1 to 4 amperes, the potential not being, as I before stated, dependent upon size.

A correction of a popular delusion may also here be requisite. These cells do not contain a molecule of electricity, what they do contain is chemical energy, which may be converted into electricity. The plates are formed, one of spongy lead and the other of lead peroxide (PbO_2), the action taking place during the discharge being a transference of one atom of oxygen from PbO_2 , the positive plate, to Pb or negative plate tending to form a normal PbO on both plates; this, when the accumulator is re-charged, is re-transferred to the positive plate.

Care should always be taken not to let the plates get dry after once starting them, and never to short circuit or bring the two leading wires together, for if you do there will be a rapid evolution of gas at the plates, followed by general disruption of same.

Another mistake to guard against is not to allow the plates to become exhausted before being re-charged, as this brings about sulphating or deposition of sulphate of lead upon the plates (specimens of which I pass round), and also causes them to fall to pieces.

This is another form of accumulator and primary battery which has the highest voltage of any primary or secondary cells. It is called the zinc Lathanode cell, and has a potential of 2.35 volts, the positive plate being formed of a preparation of peroxide of lead and other material, forming a hard dense plate, a piece of which I pass round for your inspection.

I will now endeavour to demonstrate the working of the various exhibits with which, by the kind co-operation of various firms, I have been enabled to illustrate my paper.

First and foremost in its utility I may safely place the electro motor, and to no one is more credit due than to Mr. Cutriss, who has been steadily working and elucidating the problem of the application of electricity to dental purposes.

Here we have a suspension motor supplied me by Cutriss & Co. This is suspended to a ceiling suspension bracket, the axis of which is over the chair, allowing the motor to swing all round the patient if necessary, and when out of use is supported by a hook on the wall. The driving cable is fitted with automatic clutch, which is stopped instantly the current is interrupted; it has also a reversing switch for running armature in opposite direction.

This is the ordinary motor and stand as supplied by Cutriss, Wallis and Co., and works at an E. M. F. of 8 volts and one to 2 amperes.

Mr. Cutriss' latest patent governor motor, and has on the side of armature an adjustable regulator for maintaining a constant speed. This motor was made to work with two cells, but is scarcely powerful enough for heavy work.

This is an adjustable foot resistance for the prevention and regulation of current to motors.

The next motor emanates from the fertile brain of our friend Mr. Kirby, and which has also patented governor attachments, and is made to run from a current of high potential 100 volts, but can be wired for less.

Our next exhibit has been specially sent for from Berlin by Messrs. Menzel and Co., of London, and manufactured by Simonis of Berlin. It is the most complete and portable dental electrical outfit upon the market, and for finish and lightness is a model of perfection.

The burring engine requiring a current of 8 to 10 volts at $2\frac{1}{2}$ amperes, and has right angle attachment.

The electric mallet; potential 2 to 3 volts. The mouth lamp potential 4 to 5 volts, and has resistance coil in the handle to regulate current.

The non-thermal glass rod which may be inserted in mouth without fear of cauterising patient where it is not required; potential 6 to 7 volts.

The ordinary mouth lamp with resistance. The electrothermal desiccator or hot-air syringe, exceedingly useful for drying cavities, and perfectly under control by means of the contact button, the glass nozzle enabling you to see the platinum heater.

The electro-cautery for the cauterisation of pulps or removal of small growths.

Amongst the minor adjuncts of the operating room may be classed the lamps—a boon during the dull days or for those who have unfortunately the disadvantage of a practice which requires any evening work. This is my new frontal lamp suitable for dental and surgical purposes combining lightness and portability, and only requires a potential of 4 volts. This is now running from this small pocket accumulator manufactured by Cathcart, Peto and Radford, of Hatton Garden, London, the whole occupying but little space when packed for carriage.

The bracket lamp manufactured by the Dental Manufacturing Company, requiring a potential of 8 volts.

Another accessory of the operating room is the grinding lathe. This also is manufactured by Cutris, Wallis and Co., and has also a patent governor working, potential 8 volts, 2 amperes.

Heater. For those who are supplied with current of a high potential it is necessary before they can use it to their present motors to reduce its power, and this is effected by means of interposing resistance in the circuit, which is either in the form of german silver wire or carbon. The Boyd-Wallis switchboard here exhibited is of the latter type. By means of this handle the current is diverted through a varying number of carbon rods, made from graphite or black lead, which is very infusible and resistant—a sample of which I hand round for your inspection.

The Telschowe reflector, with lamp of 30-candle power, but I regret to say that the lamp sent is not the one made for the instrument.

The next is an alternating current switch-board, but of this I have no description.

The Cutriss resistance and switch-board, the resistance of which is composed of lamps, and is connected to the motor at the end of the table. The resistances in this are easily replaced.

Special foot switch for grinding lathe.

Floor contact.

Yet another use for electricity, the heating of water for dental purposes, manufactured by the General Electric Co., of Manchester

and London, and to whom I am indebted for the testing instruments and other exhibits. This requires a potential of 100 volts.

Circular heater or grilling plate, by which a chop or steak can be cooked.

Cigar lighter and lamp. This is not strictly dental; it used to be said you could not light your pipe with electricity, but this is no longer true.

Whilst for the ladies we have the electric flat iron and curling iron heater. I have not exhausted the possibilities in this direction, and hope to show you more on another occasion.

Electric bells, gongs and trumpets are also useful accessories to the operating room, and for situations where it would be difficult to place speaking tubes, the domestic telephones are the most convenient.

For the workshop we have the new combined motor, grinding and polishing lathe, working at 8 to 10 volts and amperes. Amongst the possibilities of the future are electrical soldering, deposition of plates, and maybe fusing and firing continuous gum work—in fact, who knows the Omega of it?

Mr. President and Gentlemen, I hope you will pardon my prolixity; my excuse must be my desire to popularize and demonstrate that very little electrical knowledge is requisite for the safe working of the mighty power of the future, and that no one need be afraid of this blessing of the 19th century, a boon which our worthy and esteemed president of the Midland Branch, Mr. Harding, paid so eloquent a tribute to in his address at the Annual Meeting at Huddersfield. It is said the "joys we never know we never miss," and of nothing is it more true than in the application of electricity to dental purposes, for those who have not used it, cannot appreciate it fully, whilst those who have, would not willingly revert to the foot treadle.

BACTERIOLOGY.—On previous occasions we have referred to an excellent course of practical bacteriology which is given at King's College during the evenings. Those dental practitioners who have attended the course speak highly of its value, and as there may be others who are anxious to acquaint themselves with the groundwork of this practically new science, we are happy to state that the next class will start on Monday, October 17th, full particulars of which can be obtained of R. T. Hewlett, Esq., Bacteriological Laboratory, King's College, London.

An Address on the Practice of Anæsthesia in Oral Surgery: its Dangers, Difficulties, and the best Methods of dealing with Them.*

By DUDLEY BUXTON, M.D., B.S., M.R.C.P.LOND.

ANÆSTHETIST TO UNIVERSITY COLLEGE HOSPITAL AND TO THE DENTAL HOSPITAL OF LONDON.

I FEEL somehow like one of those gentlemen who are present on festive evenings to show conjuring tricks, for my preparations have been somewhat lengthy, for I require a great many to show some conjuring tricks we anæsthetists are in the habit of carrying out. I should like to say to you, there being nothing new under the sun, you must not expect me to give you anything altogether new. What I hope to do is to bring forward old facts, possibly in a new way—to insist upon old truths perhaps more emphatically than you may have had the opportunity of hearing them put before you hitherto. Let me premise that I assume many of you here know far more about the subject than I do, and I want you to forgive me if I treat you as though you knew nothing. I cannot possibly address you without telling you something you know, but however humbly, I must assume I am going to teach you something. If I am vainglorious forgive me, and have it out with me on another occasion. The point is, How shall we best give anæsthetics in dental and oral surgery? and it is upon that point I propose to address you to-day. There is the choice of the anæsthetic, and then there are the choices of ways in which one or all shall be administered. We have our old familiar friends, nitrous oxide and ether—whom I hope will become more intimate friends with some of us to-day—and we have our still older familiar friend, chloroform. Then we have the less commonly known bromide of ethyl and pental, and in addition we have of course various mixtures—nitrous oxide and oxygen, nitrous oxide and ether, we have alcohol mixed with ether and chloroform in the form of the A.C.E. mixture, and we have the much-advertised mixture of methyl chloroform and alcohol, incorrectly called bi-chloride of methylene. This need not detain us, nor need local anæsthesia induced by electricity or in other ways be dealt with.

* Delivered at the Annual Meeting of the Central Counties Branch, Lichfield, June 25th, 1892.

It has been hinted that nitrous oxide has reached its dotage, that it has been a very good thing in days gone by, but its youngest descendant, the mixture of oxygen with nitrous oxide, is thought by some to have eclipsed if not supplanted it. Personally, I stick to my old friends! It has been said nitrous oxide produces too short anæsthesia, cyanosis and jactitation, and spasm of the larynx. All these drawbacks can be lessened by mixing it with oxygen. These objections can, I think, be urged rather against the method than against the gas itself. If nitrous oxide is given wisely we can abrogate some of these objections against it. We must, however, get a clear and correct idea of the physiological action of nitrous oxide first. I will simply say in passing that there are two theories which respectively assert that (1) it acts by asphyxia and (2) that it acts by a specific action of its own. I think the researches of Paul Bert, and the experience of Dr. Frederick Hewitt with oxygen and nitrous oxide, give support to my contention that nitrous oxide has a specific action of its own upon the ganglionic centres of the cord. The latter has shown that if you give nitrous oxide mixed with oxygen you can obviate all the asphyxial symptoms which may present themselves at the close of an ordinary administration of laughing gas. When nitrous oxide given alone is pushed to a sufficient extent, the patient becomes cyanosed, and jactitation becomes marked. But if the same patient is then given the same gas, nitrous oxide, but diluted by oxygen, he is not affected by the cyanosis or jactitation, although he can be rendered anæsthetic. Does it not prove that nitrous oxide exerts a physiological action not that of asphyxia? because we know that oxygen by itself is not an anæsthetic, and from the experiment of Paul Bert, we know further that the mixture of nitrous oxide and oxygen can be given under pressure producing anæsthesia, which may be maintained for a considerable time. Of course, as the mixture is now given in Germany, France, and in England, the anæsthesia obtained is almost of the same duration as that of nitrous oxide by itself. I have other reasons for supporting this view, but time forbids me from enlarging on them now, but I feel bound to emphasise strongly that nitrous oxide, when given simply for ordinary anæsthesia, need not produce the phenomena of asphyxia.

This fact is one of great importance, for otherwise we as medical men should not be justified in administering nitrous oxide in cases in which the blood was not properly oxygenated—*i.e.*, in

cases of cyanosis, certain affections of the heart, &c. From my practical experience I may say I have given nitrous oxide to children under five and people over ninety, and I have given it to people in most stages of pulmonary disease, and in many cases of heart lesion, and yet I have not found ill effects to accrue from the physiological action of nitrous oxide, such as must have occurred had I been employing an asphyxiant to persons already partly asphyxiated. But it has been said nitrous oxide by itself does not give time enough for the prolonged operations sometimes required by dental surgery. I may say in passing—and many of you, I hope, will agree with me—that very heroic operations under an anæsthetic are not to be commended. They are greatly to be admired, no doubt, as showing the skill of the operator, but they occasion after effects which are sometimes to be regretted. Still, occasions do arise when it is necessary to prolong a dental operation, and how is prolongation to be effected? We are told by Dr. Hewitt that the mixture of nitrous oxide and oxygen will give three or four seconds longer than nitrous oxide—a distinct gain, but perhaps hardly enough to render much help in very extensive operations. As Dr. Hewitt himself says, the mixture must prove a valuable adjunct to, rather than a supplanter of, our old friend nitrous oxide. It possesses, he thinks, advantages but also drawbacks. Probably nitrous oxide will hold its own simply because of the rapidity and certainty of its action, and its freedom from after effects of an undesirable character.

What we want when nitrous oxide does not suffice is a much longer time than the few seconds given by the mixture. We want something that will enable us to have a minute and a half or two minutes clear, and I should say the best way is to begin with nitrous oxide, and to pass from that to ether. But to get a satisfactory result this must be accomplished in the proper way. [Dr. Dudley Buxton then demonstrated his method of giving nitrous oxide and ether.]

You pass nitrous oxide over ether and you then give pure ether, and you can obtain anæsthesia for a minute to two minutes, and sometimes longer, and the patient will have no after effects in the majority of cases, and that method will give you far better results than any other means that we have in our possession. Other means are, giving chloroform with the mixture or giving ether by itself. Chloroform in dental surgery possesses very grave dangers. In looking up the literature of the subject, I

have been obliged to notice the deaths which have occurred since the introduction of chloroform by Simpson, in 1847, and the number of deaths given as caused by chloroform administered for dental operations is absolutely appalling. I believe this mortality is due to the fact that the fifth pair of nerves are closely associated with the vagus nerve and the inhibitory nerves of the heart; chloroform depresses the whole system, and this allows any marked impulse which may originate from stimulation of the sensory nerves to bring about syncope. [This action was illustrated by a diagram on the blackboard.]

If you have a strong impression conveyed from the mucous membrane to the medulla oblongata you will have it conveyed along the sympathetic nerves to the nerve centres of the heart. Of course this might occur to any patient from any sensory area. A patient might faint many times with impunity from teeth extracting, yet sooner or later the fatal syncope will occur. It is our duty to give them the minimum of risk. I am no dogmatist, and I give chloroform very largely, and believe, in suitable cases, it is a valuable agent, but I think its use must be restricted. We know perfectly well the effect of ether is that of a heart stimulant. When we are dealing with enfeebled people, by using ether we are helping them on. It has been shown that the effect of chloroform on the heart is to gradually depress the heart's action. [Diagram on board.]

Professor MacWilliam has shown that the four cavities of the heart actually undergo dilatation under the influence of chloroform, and we also know from clinical experience that a dilated heart is weakened, and unless you have a healthy myocardium there is always a danger that it succumbs to syncope. You may pull elastic out to a certain extent and it will contract again, if you pull it beyond the contracting point then it suddenly becomes limp and done for; so is it with the heart. The next point to consider is, if we do use chloroform, in what way shall we employ it? Undoubtedly many of the dangers of chloroform are due to the irrational way it is used. People have endeavoured to give it to persons sitting up in a dentist's chair—an absolutely unjustifiable proceeding. Others have advised a whiff of chloroform! A book was given me the other day by a member of your profession in which he advocates the use of chloroform in dental surgery, and emphasizes the fact that chloroform can be given by a whiff producing slight and transient anæsthesia. I admit it. The

communication ways along the spinal cord are opened by the "whiff," the inhibition to the heart is able to be conveyed from the medulla oblongata far better when the ordinary work of the cord is in abeyance. If you want to kill the patient give him a "whiff!" I am in absolute disagreement with the finding of the Hyderabad Commission when they say heart failure never follows directly from the action of chloroform. That Commission attempted to show there was no shock under chloroform. I attach, however, far more importance to my every-day experience than I do to the experiments made in an academic way upon the lower animals, whose nervous systems do not lend themselves to shock in operative procedure. Have you ever known a dog faint? It is the rarest thing for a dog to have syncope. I have never had a dog that fainted, but my relatives are in the habit of fainting. Would it be a sound deduction to say human beings never faint when not under chloroform, because we have never seen a dog do so?

As the nervous system becomes more highly elaborated, so does it become more liable to interaction and reflexes telling against the individual. A phlegmatic man would sit down to have his leg off and smoke a cigarette. A highly nervous man—and most of us are nowadays—may expire from the shock of the operation. And as we get the nervous system more elaborated, so we are liable to have inhibition of the heart from reflex shock. You have only to notice how persons even when under anæsthesia will show signs of reflex action when the viscera are being manipulated. These facts are worth more than all the academic conclusions to which the Hyderabad Commission came.

Then I must pass on to the practical side of the business, namely, the best way in which to give these anæsthetics.

[Dr. Dudley Buxton then described various apparatus.]

Dr. Dudley Buxton then showed the niceties of the construction of the inhaler by which gas and ether could be administered, beginning with gas, etheralised gas, and then, when the patient was unconscious, pure ether. There was no coughing, "for they were past coughing then."

Proceeding, Dr. Dudley Buxton said: People will not give ether properly. The patient looks blue and they give them air. The result is the air and ether produce the same exhilarating effect as whiskey. My average time to get my patient absolutely unconscious is a minute and a-half. Anyone can do this if they

will only master the apparatus, and this can be done in a short time. Then as regards this face piece [exhibited]. The face piece is for giving gas with an expiration valve. You want to give gas without asphyxia, without the patient inhaling carbon dioxide. He must expire, and you must prevent his expired breath being re-inhaled, for you want to have the lungs full of nitrous oxide. Therefore, let him expire the air as much as he will by means of this expiration valve. You want also as much pressure as you can [how produced here shown]. I employ the valve face-piece with a cap, which can easily be turned to and fro. I may in passing say one or two useful hints have occurred to me in some years' practice with regard to the dangers of oral surgery during operation. The dentists of to-day are very clever persons, but not even the ambidexter can do the work of three hands. The anæsthetist should be at hand to help when his aid is required.

[Dr. Buxton showed the oral spoon with his own modification and other appliances. He then showed instruments used in the administration of chloroform made by Krohne and Sesemann, of London.]

It may be asked if you can ensure a low percentage of chloroform, why do not you administer it, for it must be safe? For this reason: the terminal bronchioles and air cells become structurally altered as age advances. The elastic tissue becomes more or less fibrous, and persons in poor health may lose elastic tissue long before the age of forty. If we could be sure these air-vesicles could get rid of the whole of the chloroform we should be all right, but you may get in the lungs a very high percentage of chloroform which is not being eliminated, and that is a grave danger in the use of chloroform. Whatever appliances you have for giving a low percentage of chloroform, unless you are sure you are getting rid of as much chloroform as you are allowing to enter, you are always more or less in jeopardy.

To refer briefly to other anæsthetics, bromide of ethyl has some disadvantages. To begin with, you cannot use it for any operation which lasts over a few minutes, and when you do give it you often have some after sickness and giddiness and stupor, which for dental work I should say would put it out of court. If you have even two or three surgeries and waiting-rooms it is a very uncomfortable thing to have the surgeries all full of patients rendered *hors de combat* by the anæsthetic. Bromide of ethyl is probably quite as dangerous as chloroform, without its advantages.

With regard to pental, we do not know sufficient about it, and it is difficult to get it pure. Snow used it in the "fifties," and he had two deaths out of 288 cases then ; he might have had 2,000 or 4,000 cases and not the same percentage, but we may know that the physiological action seems to be much the same as that of chloroform. And then, many people are very fond of the A.C.E. mixture, and I have another apparatus here which is very useful for giving that. It is the invention of Mr. Krohne. [Instrument exhibited.] Remember this, to distinguish between giving gas and ether, chloroform and mixture—in nitrous oxide you must exclude all air ; in ether you must exclude all air until your patient is off ; in giving the A.C.E. mixture you must give plenty of air, for you will have paralysis of respiration coming on unless you give air ; in giving chloroform you must give still more air.

In conclusion, let me urge upon you to give nitrous oxide the first place in dental surgery, and, when necessary, to give it with ether, and never, except in the most exceptional circumstances, to employ chloroform in that connection. Had time allowed me I should have liked to have brought forward the giving of ether in oral operations by the *rectum*. I have had very great success with it, but on the other hand I have had other cases in which nothing would lead me to use it again. I have, however, entered into the matter fully elsewhere.* I have to thank you for the kind way in which you have listened to me.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Victoria Dental Hospital, Manchester.

THE distribution of prizes in connection with this hospital took place on July 28th at the Grand Hotel, Aytoun Street, Manchester, the chair being occupied by Mr. H. Champion. The report for the eighth year of the hospital, which was read by the dean of the school, showed that the present year seemed likely to prove an important one in the history of both the Hospital and the Dental School, inasmuch as another two months would see the institution established in new and large premises, which would afford increased facilities for the development of the teaching. During the year nine students presented themselves for examination at the English College of Surgeons,

* See "Anæsthetics, their uses and administration" (Lewis, London), Second Edition, "Rectal Etherisation."

and of these, six had been successful. This was a smaller number than last year, but a larger percentage than was generally obtained at other hospitals. In its efforts to raise and maintain at the highest possible standard the teaching at the hospital, the staff felt that the standard of requirements for prizes must be made correspondingly high. Only in this way could the hospital take a position as a teaching body worthy to rank in its own special sphere with the Manchester Medical School and other departments of the Owens College.

The CHAIRMAN pointed out that the new premises they were removing to were only to be temporary, pending the building of their new hospital.

Dr. A. H. YOUNG, having presented the prizes, gave an address. Referring to the fact that the disappearance of permanent teeth is concomitant with progress in civilization, he said the subject raised important anthropological questions for investigation and research on the part of students of dentistry generally. Speaking of the future of the hospital and school, Dr. Young said he believed the natural outcome of the growth of the dental department would be the establishment of a diploma or degree of qualification and distinction higher than that now obtainable. As to the necessity for a diploma for medicine and dentistry combined there were differences of opinion, but it was a fact that the vacancies arising in the ranks of dental surgeons were infinitely more numerous than the number of men who were being trained to fill them, and when their colleagues who were intending to practise medicine only found their own special department a little overcrowded, he had no doubt that many of them would turn their attention to the opener, wider, and more promising field of special dentistry. He was convinced that before many years had passed they would find a considerable accession to their ranks in this way. Whether the position of affairs obtaining in medicine, where special diplomas were the only passports to special appointments, would hold good with dentists none could say, but the teaching of the past had been that those medical students who had anticipated changes and taken diplomas which were not seen to be absolutely essential had been the gainers in the long run. That was one of the considerations which those who were responsible for the future education of dental students should give their attention to, and a point which must inevitably modify any changes made in the curriculum of medical students in the next five or ten years.

A vote of thanks to Dr. Young was cordially passed on the motion of Mr. P. HEADRIDGE, seconded by Dr. STALLARD, and a similar compliment to the chairman concluded the proceedings.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Death from Chloroform.

FOR the following notes of this case we are indebted to J. E. Gemmell, M.B., C.M., Hon. Anæsthetist Liverpool Royal Infirmary and Liverpool Dental Hospital:—

“The patient was a woman, thirty-four years of age, who had suffered from severe neuralgia for two years, and had determined to have her teeth extracted, the operation intended being the removal of all teeth and stumps in the upper, and eight in the lower, jaw.

“She was a healthy-looking woman, of stout habit of body, and, on being called to the Dental Hospital, I examined her, and found no evidence of any valvular disease, and the heart sounds clear, the pulse well filled and regular, respiratory system healthy, the patient rather nervous.

“The corset and clothes were thoroughly loosened, and the patient placed in the semi-recumbent position, the chair being lowered for the purpose. A few drops of chloroform were inhaled very slowly from a Skinner's inhaler, and the respirations were free and easy, but after thirty drops had been used the pulse became feeble (whereupon the inhaler was removed), a slight epileptiform seizure followed, and the heart failed, although respiratory movements continued, aided artificially for half an hour. The intended operation was never commenced. All known restorative means were adopted but without any effect.

“*Post-mortem*.—The *heart* was in diastole, slightly enlarged, and the muscle on the inner surface of the ventricles showed an early fatty change. The valves were healthy and competent. The *kidneys* were slightly enlarged and congested; all the other organs were healthy. Death took place from cardiac failure.”

DR. FREEMAN, in the *Dental Review*, states that: “Gold, except it be precipitated by sulphate of iron, is cohesive, when one leaf is laid upon another. If subjected to exposure to the atmosphere, or kept in proximity to acid and gases, it loses its cohesive properties, which can be restored by heat.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Two Cases of Removal of the Gasserian Ganglion through the Floor of the Skull for Trifacial Neuralgia.*

BY EDMUND ANDREWS, M.D.

SURGEON TO MERCY HOSPITAL, CHICAGO.

EIGHT months ago I read before this Society a report of cadaver studies on the possibility of removing the Gasserian ganglion through the floor of the skull, and demonstrated six different methods of operating. I also showed the probability that in the worst cases of trifacial neuralgia the true seat of the disease would thus be taken away. While making these studies, Prof. Rose of London had, unknown to me, been considering the same problem, and found opportunity to test it on two patients. Since then I have done the operation twice on living patients, and I have a recent letter from Professor Rose, informing me that he has lately done it twice in addition to his former cases.

Case 1.—This patient was a woman about 60 years of age. Her neuralgia came on five years ago, beginning mildly, and gradually increasing in severity. The inferior maxillary nerve was the one affected, and the least touch on the cheek, and every effort at swallowing, caused horrible paroxysms of pain. Owing to the distress caused by swallowing she had long ago given up taking solid food, and grown so weak that for the last five months she had been confined to bed.

I etherised the patient and proceeded as follows, making the external incisions after the plan of Rose, but operating on the deeper parts by a method of my own.

A horizontal incision was made along the zygomatic arch, and crossed by two vertical incisions, one at each end. The arch was sawed off at each extremity and turned down upon the cheek, carrying with it the masseter muscle which arises from it. This uncovered the temporal muscle and its insertion into the coronoid process of the lower jaw. I then sawed off the coronoid process and turned it upward, carrying with it the temporal muscle. Beneath lay some loose fat, containing the superior maxillary artery and the dental and gustatory branches of the affected nerve.

Tying the artery, I found the two branches of the nerve, cut them off and seized the stumps with strong forceps, and used them as a guide to the foramen ovale, through which their common trunk emerges from the cranium. I then cleared away the tissues from the level area of the cranial floor which lies just external to the foramen ovale, and applied a trephine with a long shaft to the area mentioned, setting its edge about two millimeters from the foramen. The button of bone being removed the dura mater was brought to view. The septum between the edge of the trephine hole and the foramen was then removed with bone forceps. The nerve was drawn outward and the inner half of the wall of the foramen nipped away. Taking the nerve as a guide I then opened the capsule of the ganglion and scooped it out with a small sharp surgical spoon. The temporal flap was then laid down and the coronoid process fastened to the jaw with silver

* Read before the Chicago Medical Society, February 1st, 1892.

wire. Next the masseter flap was brought upward, and the zygomatic arch wired to its place in a similar manner, and finally the incisions in the skin were closed by silk sutures, a small point being reserved for drainage.

The wound healed mainly by first intention. The neuralgia ceased at once. The entire area of the distribution of the nerves derived from the ganglion was deprived of sensibility. A peculiarity was that the third and fourth nerves, which control the recti muscles, were paralysed, so that the patient could not move the globe nor lift the upper lid, showing that these nerves were injured by the instruments while enucleating the ganglion, owing to their close proximity to it. However, the nerves were not destroyed, for at the end of four weeks the patient had completely recovered the lost motions, but not the sensibility of the organ.

The pain of swallowing having been abolished, the patient began to eat heartily, recovered strength and resumed personal care of her household. Three months have now elapsed with no return of the pain, and it is to be hoped the cure will be permanent.

Case 2.—This patient was a woman, 65 years of age, and in much the same condition as the other. A year previously I had trephined the ramus of the jaw and resected the dental nerve on the proximal side of the ramus of the jaw. The pain stopped for three months and then relapsed. I therefore decided to remove the ganglion and operated by the same method as in case No. 1. The dental branch of the nerve having been removed at my previous operation, I was deprived of the use of its trunk as a guide to the foramen ovale. However, I found easily the free edge of the external pterygoid plate, and tracing it upward to its junction with the floor of the cranium, I found the foramen, and passed a probe into it. The rest of the operation was the same as in Case No. 1. The pain was at once relieved and there was no paralysis of the muscles of the eye.

Four weeks have elapsed, and there is thus far no return of the pain.

There has not been time since my operations, or those of Prof. Rose, to settle the question of permanency. However, I think it in the highest degree probable that in almost all cases of progressive neuritis the pain ceases when it reaches the ganglion, and rarely extends onward to the brain, just as it usually does in the ganglia of the intercostal nerves in herpes zoster; and if this be ultimately found to be true, then this operation will permanently cure the great majority of cases.—*Chicago Medical Recorder.*

Myeloid Sarcomata of Upper and Lower Jaws: Partial Excision of Lower, and Complete Excision of Right Upper Jaw.

By ALFRED PARKIN, M.S., M.D.(LOND.), F.R.C.S.

SENIOR ASSISTANT-SURGEON TO THE VICTORIA HOSPITAL, HULL.

F. M., aged 3½, was admitted into the Children's Hospital on October 21st, 1891, for a large swelling in the floor of the mouth. No family history of importance. Had always been a strong healthy child, except for a few infantile complaints, until nine months before admission, when a swelling appeared above the front upper teeth, on the right side of the face. The swelling came without obvious cause

grew gradually to its present size, and was painless ; it gave rise to no inconvenience except a slight deformity. Six months ago a second swelling appeared in the front of the lower jaw, and grew rapidly, displacing the teeth in its growth. Lately this swelling has begun to bleed, and from time to time a good deal of blood has been lost from it.

Upon admission there was a firm elastic swelling in front of the lower jaw, causing the lip to protrude, projecting backwards into the mouth, being only slightly prominent when the mouth was closed. It was oval in shape, and did not involve the floor of the mouth, but on account of its extending backwards for about $1\frac{1}{4}$ inch, it so pressed up the tongue to the roof of the mouth that swallowing was difficult, and asphyxia probable in the course of a few days. The surface was smooth, with slight superficial ulceration in places. The swelling was clearly attached to the symphysis, causing some apparent thickening of the bone, which, however, felt slight. The incisor teeth on each side had been thrust out by the growth, the width of which was about $1\frac{1}{4}$ inch, and length $1\frac{1}{4}$ inch. No glandular enlargement, no pain on manipulation.

Arising from the right upper jaw, above the lateral incisor and canine teeth, was a soft, globular, elastic swelling, firmly fixed to the superior maxilla, but not adherent to the superjacent structures. Surface quite smooth and bluish ; no pain on manipulation ; no blockage of nose ; slight depression of front of palate. Superiorly the swelling gradually faded off with an indistinct margin about half an inch below the edge of the orbit. No displacement of the eye.

The swelling arising from the lower jaw, from its duration (six months), rapid growth, hæmorrhagic tendency, and soft elastic feel, seemed undoubtedly of a sarcomatous nature ; it looked like a gigantic epulis, and did not appear to be a central sarcoma, judging from the slight apparent thickening of the bone and a tendency of the bone to pedunculation. On account of rapid growth and imminent danger to the child, who did not seem capable of existing another week if nothing was done, I determined, in spite of the existence of a second tumour, to operate immediately. The second swelling was the only evidence of dissemination.

Consequently, on October 25th, under chloroform, I proceeded to excise the portion of the lower jaw from which the growth sprang, that is, that portion between the two first molars. A vertical incision was first made through the lower lip to the chin in the middle line, the soft parts dissected off the bone and the attachments of the muscles divided. The bone was then partially sawn through on each side, and the section completed by bone forceps. Hæmorrhage was profuse, but was soon stopped after removal of the growth. A silk suture was passed through the base of the tongue and through the neck to prevent the tongue from falling back. The lip was sutured and dressed with collodion and blue wool. A trochar and cannula inserted into the upper swelling gave no indication of its being cystic. The operation lasted thirty-five minutes.

The child did uninterruptedly well. The floor of the mouth was brushed over daily with a 10 per cent. solution of iodoform in ether. Highest temperature, 101.4° . Stitches removed about the tenth day.

On October 30th, five days after the first operation, the condition of the child being excellent, I proceeded to remove the right upper

jaw, my intention being if possible to leave the orbital plate of the superior maxilla. An incision was first made through the upper lip and along the right side of the nose; the flap was reflected, all bleeding stopped, and the extent of the growth ascertained. After dividing the hard palate the superior maxilla was divided horizontally half an inch below the orbital plate. The lower three-quarters of the bone along with the growth was easily removed, and it was then seen that a portion of the growth extended up to the orbital plate. It was therefore necessary to continue the incision beneath the orbit, saw through the malar bone and nasal process of the superior maxilla, and thus remove the orbital plate with the remnant of the growth. The operation lasted thirty-five minutes; hæmorrhage was severe, and the child much collapsed, but recovered considerably in the course of a few hours.

The wounds both healed by primary intention; some opacity of the right cornea resulted, which at the time of writing had quite disappeared.

Six weeks after the operation the child developed a sharp attack of broncho-pneumonia, but soon recovered.

The discharge from both wounds remained perfectly sweet throughout, and practically ceased before the broncho-pneumonia came on.

Examination of the portions removed showed in each case a soft reddish gelatinous growth in the centre of the bone, arising apparently in the cancellous tissue, and "expanding" the compact bone on each side. In the lower jaw the growth had spread backwards into the mouth, and here was not confined by bone. The teeth had been pushed away on each side, and could be easily removed. In the upper jaw the growth had originated and spread between the two plates of bone forming the anterior surface of the superior maxilla, and the posterior plate had been so pushed back as almost to obliterate the rudimentary antrum, which could be recognised as a very small cavity posteriorly; the palate bone had been left behind, probably all the better for the patient. Both growths had been completely removed.

Microscopically each growth showed a stroma of firm fibrous tissue, with abundant small spindle and round cells, among which were many myeloid cells with a varying number of nuclei—in other words, a typical myeloid sarcoma.

Remarks.—The points which seem to be of special importance are—(1) the existence of a double swelling of very rapid growth, with threatened asphyxia from pushing back of the tongue; (2) the rapid recovery in each instance from so serious an operation performed on so young a child; (3) absence of any complication; this I attribute to the careful application of the ethereal solution of iodoform; (4) the rarity of the case; Mr. C. Heath, in his essay on the jaws, stating that myeloid sarcomata of the jaws occur after 25 years of age. The amount of repair which has taken place in so short a time (three months) seems to me surprising. There is scarcely a trace of a scar visible on the lower lip. The two portions of the lower jaw are united by dense fibrous tissue, with what feels like some new bone on the left side, and in the centre the new tissue causes the chin to retain its prominent shape. The repair is greatest in the situation of the right upper jaw, where a firm hard mass of tissue has developed in the situation of the gum, and resembling very much the alveolus on the opposite side. Behind this is a small gap scarcely more than three-

quarters of an inch from before backwards, and a quarter of an inch from side to side. There is no trace whatever of any recurrence, and the child, though pale and still weak, can talk quite well, and takes her food without the slightest difficulty. The amount of disfigurement is extremely slight; the only thing visible is a slight sinking in of the lower lip, and a little prominence of the left upper central incisor. There is no displacement of the right eye.—*British Medical Journal*.

REVIEWS AND NOTICES OF BOOKS.

AIDS TO DENTAL HISTOLOGY. By ARTHUR S. UNDERWOOD, M.R.C.S., L.D.S.Eng. First edition. London: Baillière, Tindall and Co. Pp. 84.

THIS volume forms one of the Students' Aid Series designed by the publishers, and is also a companion to the author's book upon *Dental Surgery*.

The work, as will be seen by the title, deals only with dental histology, and is divided into five chapters. The first deals with the nature of teeth, and not only gives a clear description and insight into the homologies of the teeth, but also sketches in an equally lucid manner the process of evolution, showing how by the principle of the survival of the fittest and natural selection this great law has helped to produce the various different dentitions.

The second chapter is devoted to the development of the teeth, the third to calcification, while the fourth deals with the calcified and uncalcified dental tissues. These chapters may truly be regarded as a concise epitome and explanation of all that is at present known upon these subjects.

The fifth chapter is devoted to practical microscopy, and occupies twenty-six pages. For this chapter alone the book is worthy of the greatest praise. It is an innovation of the most useful kind, and cannot fail to be of the greatest use to not only the student, but also to those practitioners interested in the subject. Dental microscopy in many respects stands by itself, and this chapter certainly supplies a long-felt want.

All through the book the writing is simple, clear, and concise, some of the similes, and especially those in reference to Plicidentine, being very good.

In conclusion, we must congratulate the author upon his small but useful work, and cordially recommend it all those who are preparing for the ordeal at the College of Surgeons.

GUIDE TO THE ADMINISTRATION OF ANÆSTHETICS.

BY HENRY DAVIS, M.R.C.S. Second edition. London: H. K. Lewis.

THIS volume, the first edition of which we reviewed at some length, is a short and very compact introduction to the study of anæsthesia. The object of the book is "to supply the chief details which are requisite for the safe administration of the various anæsthetics," and to a certain extent we think that Mr. Davis succeeds in his object. That the book has reached a second edition is perhaps a testimony of its use to the student.

OBITUARY.

Richard White, M.R.C.S., L.D.S.Eng.

MR. RICHARD WHITE, whose death we regret to announce, was born on March 9th, 1819, and was the eldest son of the late Mr. Richard White, of Ashdon, and Radwinter, Essex. Educated privately at Saffron Walden, in 1841 he became a pupil of the late Mr. Robinson, the then well-known dental surgeon, of London. In the following year he began practice at Great Yarmouth, and in 1843 migrated to St. Giles' Street, Norwich, starting a practice in the house which is still that of the firm of Richard White and Sons, and continued in active practice until March, 1886. In 1845 he married a daughter of the late William Freeman, Esq., J.P., formerly Sheriff and Mayor of Norwich, and in 1860 he became L.D.S., R.C.S.Eng. on the institution of that diploma. He took an active part in the organisation of the Eastern Counties Dental Association, of which he was the first president in 1881; this association afterwards became affiliated to the British Dental Association as its Eastern Counties Branch. In 1885 he became President of the British Dental Association, and his handsome presence in the chair, and his able address, will be well remembered by many members of the Association. He was for some years member of the council of the Odontological Society, and was a governor of the Dental Hospital, Leicester Square. Early in 1886 he was seized with an attack of paralysis, and retired to Dover, where he died on the 3rd of July last in his 74th year, leaving his twelve children to lament his loss.

MICROSCOPICAL AND LABORATORY GOSSIP.

A METHOD OF OBTAINING PURE CULTIVATIONS OF TUBERCLE BACILLI FROM SPUTUM.—The following procedure is recommended by E. Pastor (*Centralbl. f. Bakteriologie*, February 27th, 1892). The sputum is examined microscopically, and regarded as suitable for the purpose if rich in tubercle bacilli and comparatively poor in other micro-organisms. The patient is told to wash out the mouth and fauces with sterilised water, and then to expectorate into a test tube. The sputum so obtained is emulsified by agitation with sterilised water, and all large particles removed by filtration. A few drops of the filtrate are mixed with nutrient gelatine (10 per cent.); the mixture should not look very cloudy; it may be regarded as suitable if, in each preparation made from it, there are some separate bacilli. The gelatine is now poured out on a plate, and this is kept at the temperature of the room. In three or four days various kinds of colonies appear, which have sprung from the different bacteria contained in the sputum; the tubercle bacilli have not, of course, developed. The plate is now examined with a magnifying glass, and any clear portions of gelatine between the colonies are carefully cut out with a sterilised knife and placed upon sterilised blood serum, which is then kept at 37.5°C. From ten tubes so prepared the author always succeeded in obtaining at least one pure cultivation of tubercle bacilli. Better results are obtainable from the fluid contents of phthisical cavities, since the tubercle bacilli are more numerous, and impurities less common therein than in sputum.

AT a meeting of the South-West German Society for Neurology and Psychiatry, Dr. L. Edinger, of Frankfort-on-Main, showed his drawing apparatus for use with microscopes of low power. The apparatus, a description of which is translated in the *English Mechanic*, is based on the projection principle, and consists of a stand bearing an upright, which supports a tube or cylinder parallel to the base, and in opposition to a piece of canvas-board which cuts off all the rays of light, excepting those passing through the cylinder. The front surface of the upright has a metal groove, into which is fitted, at its upper part, an arm terminating at the other end in a circular plate for the support of the object to be

drawn. Beneath this is a second arm, also fitted into the groove, terminating in a small cylinder for the reception of the lens. Both of these arms are movable, but the upper one should remain fixed. Moving the other will focus the rays of light, and make larger or smaller representations of the preparation, according to its distance from the object-bearer. The light used may be either sunlight or artificial. As a rule an ordinary lamp, with or without a small reflector, answers all purposes. The light being placed in the proper position, and the preparation to be drawn on the object table, a sharply outlined picture of the preparation will be thrown on a piece of drawing paper beneath. By regulating the height of the arm bearing the lens, or by changing the lens, any magnification between two and fifteen times can be made. In this way the outlines of an absolutely true drawing can be made and the details filled in from the microscope, or a precise picture can be made from the apparatus alone, so sharply defined is the representation. Of course, specimens coloured with dark stains give more clearly differentiated pictures than the light ones. The instrument is made by Meyrowitz Bros., of New York, and may be had with two or three lenses. Two are all that are necessary ordinarily, but the third is important sometimes when the object to be drawn is very small.—*Discovery.*

THE following is recommended by the *Dental World* as useful for facial neuralgia or acute pericementitis.

R Chloroformi	...	...	...	3ij
Tinct. aconiti	...	...	...	} aa 3iij
Tinct. Belladonnæ	...	...	...

M. et signa. Rub on the gums or skin over the affected part.

WE have received the following letter from a correspondent :—

DEAR SIR,—As a result of my demonstration at the recent Manchester meeting of the British Dental Association, I venture to express a hope that many of my friends will be induced to try the method of preparing and cutting sections of teeth which I advocate. Already I have had several enquiries respecting details of the process from friends who have experienced some difficulty in obtaining satisfactory sections, and would suggest that your "Microscopical Gossip" column should be the medium for the discussion of these points.

I shall always be happy to answer queries, and will do all I can to

advance the cause of dental microscopy amongst the members of the Association.

Believe me,

Yours sincerely,

August 22nd.

A. HOPEWELL SMITH.

We think that the suggestion is very good, and should be pleased if our readers would make any queries respecting microscopy through the columns of the Journal.

ANNOTATIONS.

ANNUAL MUSEUM.—We have been requested to publish the accompanying list of members of the Museum Committee, as the one which appeared in our July issue was incorrect and incomplete.

MUSEUM COMMITTEE (Chairman, George Brunton). *Central Branch*: J. Humphreys, J. E. Parrott, F. W. Richards. *Sub-Committee appointed by Branch*: C. Sims, F. W. Richards, A. E. Donagan. *Eastern Counties Branch*: S. A. F. Coxon, G. Cunningham. *Irish Branch*: W. Booth Pearsall, A. W. W. Baker, Geo. M. P. Murray. *London and Metropolitan Branch*: H. L. Albert, Storer Bennett, F. Canton, J. F. Colyer, D. Hepburn, W. Hern, S. J. Hutchinson, E. Lloyd Williams, L. Matheson, W. B. Paterson, Morton Smale, Sidney Spokes, C. J. Boyd Wallis, W. H. Woodruff. *Midland Counties Branch*: H. Campion, E. P. Collett, W. Dougan, R. Edwards, F. Harrison, P. Headridge, D. Headridge, W. A. Hooton, E. Houghton, M. Johnson, E. J. Ladmore, P. A. Linnell, T. Mansell, J. N. Manton, A. A. Matthews, F. W. Minshall, H. Morley, T. Murphy, H. C. Quinby, I. Renshaw, W. Simms, J. C. Storey, G. O. Whittaker, A. B. Wolfenden, G. G. Campion. *West of Scotland Branch*: J. A. Biggs. *Southern Counties Branch*: G. Henry, Walter Harrison, Morgan Hughes, J. H. Redman. *Western Branch*: W. A. Hunt, H. B. Mason.

The members of the Midland Branch, whose names are in the above list, formed the Local Committee.

MEDICAL PRACTITIONERS AND UNQUALIFIED DENTISTS.—We copy the following from the columns of the *British Medical*

Journal:—"If a medical practitioner, acting in the capacity of an anæsthetist, in any way professionally identifies himself with an unqualified practitioner, medical or dental, by administering 'gas and chloroform' to his patients, he becomes, so to speak, a *particeps criminis* or accessory, and would, therefore, we need scarcely add, be acting unprofessionally. With regard to the most judicious mode of communicating the fact to the gentleman in question, it is more a matter for the especial consideration of our correspondent himself. Possibly it might be found convenient to refer him to our reply on the subject."

DEATH UNDER CHLOROFORM.—On another page we publish an account of a death under chloroform which took place at the Liverpool Dental Hospital. This, we are sorry to record, was followed within a few days by one at St. Bartholomew's Hospital. The patient, an assistant superintendent of the police, was anæsthetised for the purpose of operating upon a deep-seated abscess in the liver. All went smoothly until just before the completion of the operation, when the patient suddenly expired. Artificial respiration was tried, but to no effect. Sudden failure of the heart producing syncope was the cause of death.

IMPURITIES OF CHLOROFORM.—A recent number of the *Chemist and Druggist* states that Professor W. Ramsay, of London University College, is one of a committee which is investigating the causes of death from chloroform during surgical operations. He has found that the only impurity in a number of samples of chloroform received from hospitals where deaths had occurred was carbonyl chloride. It was impossible to look for an unknown impurity in a number of small samples of chloroform, and therefore he had exposed a large quantity of perfectly pure chloroform to daylight in presence of air. After some months a considerable quantity of carbonyl chloride was formed, no other product except a trace of hydrochloric acid having been detected. It was possible to test for carbonyl chloride by pouring baryta on the surface of a suspected sample, when a white filament would appear at the line of division between the chloroform and the watery solution. Most of the samples received by him gave this test, and it was a significant fact that most of the samples were the products of large consignments to the hospitals. He was

inclined to believe that the cause of death was the spasmodic contraction of the glottis produced by the carbonyl chloride after the lungs had been thoroughly charged with chloroform.

CAFFEINA.—We have recently received from Messrs. Howard & Sons a sample of caffeina, which we hope to report upon at a future date. Caffeina is usually obtained from the dried leaves of *Camellia thea*, or dried coffee seeds—*Coffea Arabica*, also contained in guarana maté—the leaves of *Ilex paraguayensis* and kola nuts, the seeds of *Sterculia acuminata*, growing in Western Africa, and is identical with theine and guaranine. It has the appearance of slender needles, white in appearance; is soluble 1 in 100 of water, 1 in 25 of rectified spirit in ether, but insoluble in absolute alcohol; acids apparently render it more soluble in water. It has a bitter, not agreeable taste, and when taken internally it stimulates the heart, and raises arterial tension. In excessive doses it causes rise of temperature, convulsions, and paralysis. It is useful in hemicrania, in cases of pain after extraction, and in inflamed conditions of the gum is said to bring relief.

GENERAL HOSPITAL, LAUNCESTON.—In the annual report of the General Hospital, Launceston, for the year 1891, which has recently come to hand, we note with great pleasure the statement in connection with the work done in the Dental Department. There has been a steady increase in the number of persons seeking advice and treatment, and of the large number of operations which have been performed, many are of a conservative and reparative character. The operative work has been greatly facilitated by the addition of a number of instruments and appliances, dental engine, operating chair, and other requirements suitable for dental surgery. In the School of Dentistry a course of instruction has been given to the students attending the Hospital in the different subjects prescribed by the curriculum under the Dentists Act, 1884, the names of Drs. J. M. Pardey, F. J. Drake, and Messrs. A. Lucádou Wells, W. H. Jermyn and A. J. Hall appearing as the lecturers.

NATIONAL DENTAL HOSPITAL.—The course of lectures on Operative Dental Surgery at the National Dental Hospital, which is intended for students and young practitioners, and may be taken as a post graduate course, will begin on October 10th at

6.30 p.m., with an open introductory lecture on the Morphology of the Human Denture as affecting methods of treatment, illustrated by models. Special subjects to be discussed by Mr. George Cunningham in this year's lectures, will include (1) Combinations of filling materials; (2) Pulp capping and its results tested by statistics; (3) Crown, bar, and bridge work, with illustrative cases. Further information of the course can be obtained from the Dean of the National Dental Hospital, Great Portland Street. The fee for the course is £2 12s. 6d.

CORRESPONDENCE.

Decay of the Teeth.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I have read many able articles on "Decay of the Teeth," and the plausible theory of its being due to micro-organisms (either directly or indirectly), and the fact that without these "little beasts" dental decay cannot be artificially produced comforted me greatly for a time. I find, however, that this theory renders me utterly unable to account for much of the decay that I see, and strive to combat with more or less success. What I want to know, and what I hope some of the more scientific contributors to your Journal will explain to me is, why the teeth of young people decay so much more frequently (as a rule) than those of adults? Why teeth remain in good condition for years, and then, for no apparent reason, commence to decay rapidly? Why this often happens when a patient has been run down somewhat in health, or after anxiety, or anything that tends to reduce vitality? Why do delicate people often have excellent teeth, and more robust members of the same family weak ones? Why do well-made gold fillings utterly fail to save some teeth, when carelessly inserted gutta-percha fillings will preserve them as long as it (the gutta-percha) remains intact? Why also does the above frequently apply to phosphate of zinc fillings? Do micro-organisms love to gather together and disport themselves round the borders of metal fillings, and carefully avoid the gutta-percha and the osteo?

I cannot but think that dental decay must be caused by an acidity of the fluids of the mouth, that this acidity varies in different individuals, and also at different times in the same individual, and that some action takes place between the metal and the acids, which causes the enamel margins of the filled cavity to be soon attacked. It appears to me that the best filling results are obtained where there is very little, if any, predisposing cause naturally; but that for some reason or other acidity has sprung into existence, decayed several teeth, and then passed away, perhaps to reappear again after many years. Fillings in a case like this if made of gold will last for perhaps twenty years, and perhaps for a lifetime. Is it too far fetched to imagine that the corrosive nature of the fluids of the mouth is caused by something or by several things that we eat?

What do we know about the exact and remote action that each and

every kind of food that we eat has on the secretions of the body? Dr. Parnly Browne considers that the use of salt as a regular article of diet is one of the principal causes of dental decay. We know the deplorable effect of manufactured sugar on the teeth of those who are engaged in the sweetmeat trade and have to be continually tasting the goods. We civilised beings eat many things that were either unknown to or not in general use amongst our ancestors, who had better teeth than we have. We certainly do not live simply, and half the time we do not know what we are eating. May not vitiated saliva as the result of one or more articles of our diet be quite as good a theory as that micro-organisms were put into our mouths to eat away our teeth?

Yours faithfully,
"EXCAVATOR."

The Museum at Manchester.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I think that more credit for the success of the Museum at the recent meeting has been given me than is my due: it was the result of the efforts of many workers. For the really admirable collection of abnormal teeth the committee were very largely indebted to the staff of the Dental Hospital of Ireland, and in particular to Mr. Pearsall, who not only prepared and forwarded the specimens, but also mounted for the Museum a large number of others, both of his own and other members. Many of the specimens from the Dental Hospital of Ireland were in the Dublin Museum in 1888, and were presented to the hospital after that meeting. They were exhibited here under the names of their original owners.

Thanks to the activity of Mr. Brunton, and the kindness of Mr. C. W. Dunn, of Florence, we were able to exhibit a number of valuable specimens belonging to the Florentine Dental Society, amongst them being an Etruscan skull of great antiquity and rarity.

The committee is also specially indebted for most valuable collections of casts to Dr. I. B. Davenport, of Paris, and Mr. G. Cunningham.

I wish also to specially acknowledge the help which was given me in classifying and arranging the specimens by Mr. David Headridge, the secretary of the Microscopical Section. Mr. W. A. Hooton assisted in this work on many evenings, but the bulk of it fell on Mr. Headridge and me, he doing almost if not quite as much as I did, and this too in addition to the work of his own Section.

Yours faithfully,

Manchester.

GEO. G. CAMPION.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 10.

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VOL. XIII.

The Extraction of the First Permanent Molar.

THOSE gentlemen upon whom fell the brunt of the labour which secured the success of the Manchester Meeting are much to be congratulated upon the results which attended their efforts, and amongst the things most fruitful and suggestive may be placed the discussion upon the extraction of the first permanent molars in crowded mouths. The Museum, thanks to the unremitting hard work bestowed upon it by Mr. Champion, contained a series of models illustrating this question, the like of which have probably never been brought together before, and it is greatly to be regretted that they must, from the nature of the case, be dispersed before they can be half worked over.

It is hardly necessary to remind our readers that until within the last few years the extraction of first permanent molars was the routine treatment in cases where extraction seemed called for in cases of overcrowding. This line of treatment was partly recommended because of the frequency with which these teeth are attacked with caries, and partly

because the ultimate results obtained were believed to be generally satisfactory. Of late a doubt as to the satisfactory nature of the result has crept in, and it was thought that a discussion at an annual meeting might serve to elicit much valuable opinion upon a moot point of practice.

The discussion was prefaced by a paper read by Dr. Davenport, of Paris, which, although most of its points had already been made public elsewhere, was serviceable as being explanatory of the very large series of models exhibited by him. These models, mounted and cut up in a manner original and highly valuable, brought out in striking relief points which have been hitherto unduly neglected, and especially the fact that articulations, which, when looked at only from the labial aspect, appear pretty good, may, when viewed from the lingual aspect, be seen to afford but poor contact and therefore but little masticatory efficiency.

So far as it was inductive the paper was valuable, but the writer appears to have been led away sometimes from the methods of Aristotle, for he goes on to argue downwards from a thesis which he takes to be unimpeachable, that there ought to be thirty-two teeth, and that any course which leads to there being less than that number is the necessary commencement of a train of evils. But, as was speedily pointed out by one of the speakers, this might be true under some sets of circumstances and yet be quite untrue under others. It is a well-known fact that all animals, wild as well as domesticated, vary not only in their total size but also in the proportion which one part bears to another, this variation often affecting the jaws and this to a far larger extent than was a few years ago believed to be the case. Now if in the reduction in the size of the jaws which has taken place in vast numbers of civilised people the teeth had undergone a proportionate reduction in their

size, we might at once agree that it was a kind of sacrilege to lay violent hands upon any member of the series. But we know that quite the contrary is the case—that the teeth seem much less susceptible of reduction in size than the jaws, and further, that the variations in the size of the teeth which do occur do not go hand in hand with those of the jaws, so that we meet with reduced jaws crowded with unreduced teeth, as may be very conspicuously seen in short-muzzled breeds of dogs. Putting aside, then, the deductive arguments adduced, and their conclusions—including those drawn from arches and their keystones—there remains the fact established by Dr. Davenport and by Mr. Champion, that the resultant articulation is often not good, but that, amongst other things, the anterior crowding is by no means always relieved, and that the articulation of the second molars is often greatly spoilt by the tilting of those teeth. A good deal of practical evidence was brought forward to illustrate the point that the extent to which this last took place differed according to the date at which the extraction had taken place.

There was a pretty general consensus of opinion that if any first molars are to be extracted, nearly always both upper and lower should be removed, and in a large majority of cases on both sides of the mouth at once; and furthermore, that the age of twelve or thirteen, when the second molars were just fully erupted, was the time to be chosen, as the untoward results were then minimised.

In the course of the discussion many of the points involved were put so well by various speakers that it seems worth while to reproduce them here, although they are to be found in the reports published last month.

Thus we hear that "the unit to be considered is not the individual tooth, but the denture as a whole—and that a full complement of teeth is not absolutely essential to the

efficient function of the dental organism;" and from another speaker, "that teeth which were in themselves savable, might be removed with great advantage in order, ultimately, to save a greater number;" and "that the period of greatest danger to the teeth from caries is between the ages of 12 and 16—that the best time for the extraction of six-year molars is immediately after the twelve-year molars are fully erupted—that is, before the period of greatest danger to the teeth from decay;" and that "there is no greater loss of masticating power from the extraction of two antagonising teeth than there is from the loss of one of them."

The practical outcome of the discussion will be to set men thinking and observing with more accuracy than before, and particularly paying more attention to the exact articulation, which to many of us comes, it may be feared, almost in the light of a new factor to be taken into account.

Of course, no final conclusion was, or in the nature of the case could be, arrived at; but there seemed to be a fairly general opinion that the ultimate results were less good than we have been accustomed to think them, and that it was, in most cases, better practice to extract a sound bicuspid than a moderately damaged first molar.

If the discussion does no more than induce a change of opinion in this direction, it will tend to diminish the number of regulation plates worn, and have a marked, and we believe, beneficial effect on future practice.

AN ingenious method of drilling holes in glass is recommended in a recent number of *Discovery*: "Stick a piece of stiff clay or putty on the part where you wish to make a hole. Make a hole in the putty the size you want the hole, reaching of course to the glass. Into this hole pour a little molten lead, when, unless it is very thick glass, the piece will drop out."

ASSOCIATION INTELLIGENCE.

Midland Branch.

AN informal Meeting of the members will be held on Saturday, October 29th, at the Medical School, Leopold Street, Sheffield.

The Council will meet at half-past three o'clock, and the General Meeting will commence at six o'clock.

The following papers have been promised: "The Past, Present and Future Training for Prosthetic Dental Work," by J. C. Storey, L.D.S. (Hull); "The Dental Profession in Sheffield," by F. Harrison, M.R.C.S., L.D.S. (Sheffield).

CASUAL COMMUNICATIONS.

By R. H. C. Drabble, L.D.S. (Sheffield); J. S. Sutton, L.D.S. (Buxton), and others.

The Sheffield Members invite the visiting members to tea at the Albany Hotel at five o'clock. The Albany is near to the Medical School.

The box of the Benevolent Fund will be sent round whilst the members are at tea.

A good attendance is requested.

I. RENSHAW, *Hon. Sec.*

Drake Street, Rochdale.

ORIGINAL COMMUNICATIONS.

Second Report of the Committee

APPOINTED BY THE REPRESENTATIVE BOARD OF THE BRITISH DENTAL ASSOCIATION TO CONDUCT THE COLLECTIVE INVESTIGATION AS TO THE CONDITION OF SCHOOL CHILDREN'S TEETH.

PROFITING by their experience in tabulating the results embodied in their first report, and its discussion at our last Annual General Meeting, your Committee have devoted their attention principally to the improvement and simplification of the method of examination, so that there has been something of a pause in actual investigation.

Despite this fact, they are glad to be able to give you the general results of the examination of some 3,368 children—not an unimportant addition to the 4,346 tabulated last year, and thus making a not inconsiderable total of 7,714, involving the examination of some 200,000 teeth. The majority of the

cases had to be entered in the old case books ; and, as the labour of tabulation involved in the use of these books is consequently so great, there has not been sufficient time to formulate them as in the first report.

The general results, however, are fairly evident from the General Table (A) which is drawn up in consonance with the form adopted so successfully by Messrs. Denison Pedley and Spokes, in making their individual reports to Boards of Guardians. The details of Hanwell and Sutton Schools, and the "Exmouth" Training Ship, London, are shown in the annexed columns.

A.—GENERAL TABLE SHOWING SOME OF THE RESULTS OF AN EXAMINATION OF THE MOUTHS OF 3368 BOYS AND GIRLS AT HANWELL AND SUTTON SCHOOLS AND "EXMOUTH" TRAINING SHIP, LONDON.

No.	Temporary Teeth requiring		Permanent Teeth requiring		Tem- porary Total.	Per- manent Total.	Un- sound Teeth.	Teeth Ex- tracted.	Sound Dentures.	
	Filling.	Extract- ing.	Filling.	Extract- ing.					No.	Ratio per 100.
903	1119	745	1222	271	1864	1493	3357	62	137	15.1
1985	2025	966	1173	513	2991	1686	4677	261	527	26.5
480	—	58	973	391	58	1364	1422	170	118	24.6
3368	3144	1769	3368	1175	4913	4543	9456	493	782	23.22

The Hanwell Schools are beautifully situated on high ground, in what was once known as Cuckoo Farm. There are about thirty acres of ground which belong to the schools and surround them. This land is farmed, and the produce is used in the schools, such as butter, eggs, milk and vegetables, &c. The children have all the advantages of a country life and an excellent education.

Owing to the large number of children which were constantly suffering from ophthalmia without obvious cause, Dr. Nettleship of St. Thomas's was asked to assist the medical officers in examining the children, and as a specialist to advise the managers as to what remedy could be found. Dr. Nettleship attributed this affection of the eyes (to a large extent) to the congregation of large numbers of children in one building. In the year 1890, isolation schools were opened for ophthalmic

cases, and are occupied by some 230 children. An ophthalmic surgeon was appointed for three years to devote the whole of his time to the treatment of the children suffering, at a salary of £500 a year. "Structural alterations are now in progress in the main building, dividing what has hitherto been one into five, with sixteen feet space between them to give better ventilation to the buildings and the children's play yards. The whole system of drainage has been overhauled, and in great measure re-constructed." (*Vide* Local Government Report, 1890-1891.)

All the children in the ophthalmic buildings were examined, and there appeared to be no connection traceable between eyes and teeth. The teeth of these children were no better and no worse. Manual instruction is now being carried out in workshops erected for the purpose. There is a large swimming-bath, and an excellent band.

In May of 1892, permission to examine the children in the schools of Hanwell was obtained from the managers, on condition that a report was sent in as to the general results of the examination. This was done, and in consequence a dental surgeon was appointed to attend one day a week, at a salary of £80 per year. [In the report it was advised that at least £100 a year should be given.] This is a notable fact, being so far the most important practical outcome of the Collective Investigation, and is encouraging to those who have undertaken the arduous task of collecting statistics. The number of children at Hanwell is on an average 1,000; out of that number 903 were carefully tabulated.

Each child has or will have a tooth brush, and will pass through the hands of the dental surgeon twice a year for examination and treatment if necessary. A well-equipped dental surgery, with dental chair, engine, gas apparatus, &c., has been provided in the school. A register of all operations is kept, and a monthly detailed report will be submitted to the Board of Management. The importance of such an appointment to the children is obvious, but this is much emphasized when we consider what their future will be, for then it is evident that in addition to the children, the State and the community at large will also be benefited. One extract from the Local Government Board Report will suffice to show this.

Boys sent out during the year 1890:—

Army bands	17
Training Ship, "Exmouth" ...	44
Home for working boys	39
Trades	7
<hr/>	
Total	107

Girls sent out during the year 1890:—

Domestic service	53
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The Sutton School is one conducted under somewhat similar conditions as to diet, environment and supply of inmates.

In these schools, the Hanwell and Sutton, the ages of the children have been generally ascertainable, but in the case of the training ship "Exmouth," off Grays, Thames, the age was usually unascertainable, ranging from eleven to sixteen or more, and probably averaging fourteen years. All the "Exmouth" boys are chargeable to some union or parish within the Metropolitan Asylum District, and usually come from such district schools as the two former, viz., Hanwell and Sutton. What becomes of them is of more immediate interest to us, which may be seen from the following table B.

B.—TABLE SHOWING THE NUMBER OF BOYS ADMITTED TO THE "EXMOUTH" FROM ITS ESTABLISHMENT ON MARCH 25TH, 1876, TO DECEMBER 31ST, 1891:—

Total admissions	4650
Entered the Royal Navy	1289
Shipped as ordinary seamen, deck or cabin boys, apprentices, assist- ant steward, and cooks in the Mercantile Marine	1648
Enlisted as band boys in the Army	583
Engaged in other callings	1130

Knowing as we do the requirements of the Army, and the still more stringent standard in the Royal Navy, as to the efficiency of the recruits' denture, the importance of the attention to the teeth of these boys should be manifest to the governing body. Thereby dental efficiency from a naval point of view will be promoted, and a larger number of boys would be eligible for the Royal Navy and would not be obliged to console themselves with the Mercantile Marine,

and later in life to find that they could not even acquire extra pay as Naval Reserve Men. The excellent medical service provided, including an infirmary on shore, does not include dental services except occasional extractions by the medical officer. The cleanliness of the boys, and the hygienic conditions of their life are all that can be desired, except so far as the mouth and teeth are concerned. None of the boys possess a tooth brush. All the boys are experts in every kind of drill except tooth brush drill. It is, therefore, interesting to note the state of the teeth, viz., 13 per cent. clean, 60 per cent. fairly clean, and 27 per cent. dirty. Of the latter only three in 131 were returned as foul. Such a return is very fair under the circumstances, and is partly explicable by the fact that every day on the "Exmouth" at 7.30 p.m. "hard tack" in the shape of ship biscuit is served out.

The examiners in this case attached some importance to the presence of stains on the teeth. Only one case of stained teeth was noted amongst the 63 "clean;" 18 amongst the 288 "fairly clean," and 27 amongst the "dirty" teeth; respectively representing ratios per hundred of 1.58, 6.25, and 21.09. The character of the stains were green and orange coloured. No tooth brush, and hence no tooth powder, is employed in this school, and therefore we have added provision for recording "stains" in future with a view of examining the relation of this condition to effective oral hygiene.

The presence of tartar was noted in 49 cases as "little" and 39 as "much," or respectively, 10.1 and 8.1 per cent., giving a total of 18.2, which harmonises with the record obtained by Dr. Ottoby from the examination of public school children in the United States.

With regard to the temporary teeth, it is obvious that the importance of their condition is very different in the case of such schools as Hanwell and Sutton on the one hand and the "Exmouth" on the other; but it would have been better had their exact condition been as carefully noted in the case of the latter as in the former.

This is an illustration of how some point of the investigation may seem of little importance in an individual school, or to an individual examiner, and yet be of great value by forming an important link in completing the evidence in our collective investigation.

Time has not permitted our being able to classify these schools amongst those tabulated last year, as to the number of defective permanent teeth. And this introduces an important difference of opinion, which it is important should be settled once for all. In defining what shall be considered a perfect denture, as it was called in the last report, or a sound dentition, as it is termed in this, should it include or not the number of teeth already extracted? The work of tabulation proves conclusively that, unless such teeth are included, a very valuable, and perhaps, the most easily ascertainable, standard of comparison will be lost. It is surely self-evident that a school, for instance, in which extractions only were performed, might easily appear to yield a greater proportion of so-called sound dentitions, than one where the forceps was only resorted to as a complement to conservative treatment. Though such teeth may occasionally be lost by some accident, such as a blow, caries is the cause of their loss in almost all cases.

The prevalence of the ravages of caries is what we wish to prove to demonstration, hence, if we catalogue carious teeth which are "savable" and those which are "unsavable," and therefore requiring extraction, it is equally important to note those which are "unsaved" and therefore have been already extracted or lost.

In the case of the "Exmouth," thanks to the new case book, it has been easy to ascertain the difference, which would be a laborious operation in the old. The "sound" dentitions amounted to 39 transitional, where one or more permanent teeth were as yet unerupted and 79 permanent, making in all 118 or a ratio per 100 boys of 24.6. Had the number of cases, where teeth had been extracted, been treated as "sound" dentitions, the percentage would have been raised to 27.5, *i.e.*, increased almost 3 per cent. In other schools examined the difference would be still greater. Time has not permitted of this correction in the case of Hanwell and Sutton, the importance of which is obvious from the foot note appended to the Sutton School Report, calling attention to the number of extractions of first molars. This footnote does not entirely explain matters, as the following table shows:—

C.—TABLE SHOWING SOUND DENTITIONS (*i.e.*, those free from Caries and including those from which Teeth had been extracted or lost, and cases of irregularity).

Age.		No. of Children.	Average Age.	Sound Dentition.	Ratio per 100.
3-5 years	{ Hanwell	60	3.7	16	26.6
	{ Sutton	84	3.7	43	51.2
5-12 years	{ *Hanwell	629	8.4	89	14.2
	{ Sutton	1220	8.5	239	19.6
11-17 years	{ *Hanwell	320	12.3	44	13.75
	{ Sutton	926	12.4	320	34.5
" "	Exmouth	480	14.	{ 133 118	{ 27.5 24.6 }

* Boys of eleven years included in both groups.

It is difficult to resist the conclusion, that a difference in the examiner may account for the surprising superiority of the Sutton School, which is so similar in every way to Hanwell. Again, the "Exmouth" seems to have the "pick" of the boys from these schools, and yet it falls considerably below Sutton.

These facts are alluded to with a view of enforcing the necessity for scrupulous exactness in these investigations, as better a few cases well recorded than a large number hurriedly performed. It also serves to remind us of that ever-varying quantity, the personal equation of the examiner.

Another factor, but of much lesser importance in estimating the perfection of a denture, is the number of teeth absent, which must be taken to mean not teeth as yet unerupted, but only those which may be thought to be permanently suppressed, such as absence of lateral incisors at twelve or more years (*Vide* First Report, p. 8).

It must be admitted that even to the professional mind the statement that in so many children so many teeth temporary or permanent, are defective, fails to convey any very accurate measure of the seriousness or otherwise of the fact. One reliable method of measurement is a tabulation of the number of perfect or sound dentures, while another is the loss of grinding capacity which fairly expresses the number of children affected with caries to an extreme degree. These methods mentioned in our First Report, however, only give

us, as it were, the extreme and opposite limits of a scale or standard of measurement.

It is desirable to sectionise this scale, but before presenting our proposal to standardise the intermediate conditions, cognisance should be made of any previous efforts in this direction. The only scale hitherto proposed, so far as we are aware, is that laid down by Professor Broca in the "Instructions générales pour les Recherches anthropologiques à faire sur le vivant," published by the Anthropological Society of Paris (Masson, Libraire de l'Académie de Médecine, p. 246).

He writes as follows under the title "Good or Bad Denture, Loss of Teeth :"—"When all the teeth are intact the denture is *very good* ; if only one or two teeth are carious it is *good* ; *mediocre*, if three to six teeth are carious ; *bad*, if more than six ; *very bad*, if more than half the number of teeth. The state of the denture is measured especially by the *loss of teeth* ; for, if the teeth may sometimes be lost in consequence of an accident or from disease of the gums, it is nearly always caries which is the cause of their loss."

These instructions are intended principally for the examinations of adults, and therefore we think unsuitable for the purpose we have now in hand, viz., the condition of children's teeth.

Despite the great scientific authority of Professor Broca, and our own desire to avoid any needless increase of systems of measurement or investigation, we nevertheless feel bound to submit a different standard of measurement for your approval, as more appropriate for children at least, and as harmonising better with the expressed views and actual treatment of dental practitioners. It will be seen in the following table that the divisions of our own scale are based on the principle of four teeth as the complement. Intact = *perfect* ; 1 to 4 teeth carious = *fair* ; 5 to 8 = *bad* ; more than 8 = *very bad*.

In the case of the "Exmouth," which stands relatively very high in dental efficiency compared with the majority of schools examined, the application of this standard of measurement shows that while 24.6 per cent. have *perfect* dentures, 44.9 per cent. have *fair*, 22.9 per cent. *bad*, and only 5.25 per cent. *very bad* dentures ; exclusive of the 2.25 per cent. of the boys having defective temporary teeth. The wretched condition of children's teeth as revealed in our own investigations has

been alluded to in the public press as one which evidently affords the dental profession so much satisfaction: but such a classification enables us to demonstrate that the policy we advocate is one of hope, not of despair; that the prevention we would enforce can only be effective if applied early in life; and that, if neglected then, Nemesis will change this hopeful retrievable condition to one of hopelessly, irretrievably, ruined dentures, and to a prematurely toothless, or worse than toothless, a tooth burdened, race.

“EXMOUTH” TRAINING SHIP.

D.—TABLE SHOWING THE RELATIVE NUMBER AND RATIO OF BOYS HAVING DEFECTIVE PERMANENT TEETH (C.D.E., *i.e.*, carious, savable; already extracted; and carious, unsavable or requiring extraction).

No. of Defective Permanent Teeth.	No. of Boys, Average age 14 years.	Ratio per 100 Boys.	Summary.	Classification.
0	118	24.6	24.6	Perfect.
1	54	11.25		
2	61	12.8		
3	45	9.4	44.9	Fair.
4	55	11.45		
5	39	8.1		
6	33	6.9	22.9	Bad.
7	26	5.4		
8	12	2.5		
9	10	2.1	5.25	Very bad.
10	5	1.05		
11	4	0.8		
13	6	1.2		
17	1	0.1		
Total ...	469			
Defective Temporary Teeth ...	11	2.25		
Grand Total ...	480	99.9		

Your Committee, having come to the conclusion that the old case-books were unsatisfactory both for examination and tabulating purposes, have devised a new case-book, specimen pages of which they now submit for your inspec-

tion and approval. The following are some of the main points in which the new differ from the old case-books. A separate page or chart is devoted to each child, and each page is numbered, while different colours are used to distinguish sex, the boys being entered on white and the girls on pink sheets. With the old books mistakes were quite frequent in the numbering of the cases, and there was no possible method of tabulating detailed results without re-copying the results of the examination. With the new books the work of tabulation can be conducted very expeditiously. On the return of the books containing the results of the examination of a school, such as the "Exmouth," the binding having been removed, the charts are distributed and classified; they can then be stored away in quarto letter-clip boxes until required for further tabulation, as when it is desired to collect statistics from a number of schools with a view of comparing one sex, age, district, or country with others. For instance, in one of the boxes now exhibited were the charts of all the children whose teeth were free from caries, and classified according to the number of teeth erupted, while in the other the charts were all arranged according to the order of the number of teeth found carious. It is evident that by this new arrangement several possible sources of error are avoided.

A considerable advantage has also been found in presenting the chart of the temporary teeth immediately above the corresponding permanent teeth which succeed them. This will especially facilitate the work in the most difficult period of school life, namely, the transitional period when the child is changing its teeth. After considering every detail very carefully, our effort has been not to needlessly alter the symbols and methods hitherto employed. We have, however, eliminated as far as possible all symbols expressing a surgical opinion with a view to making the examination as far as possible a pure statement of pathological facts, and not of surgical opinion. Hence the removal of such terms as "requiring filling," "requiring regulating." We would also have removed the term "requiring extraction," substituting the expression "carious unsavable," which may be taken as practically synonymous terms, but for a risk of complicating matters and preventing a tabulation of the new cases on the same lines as the tables in the first report.

In the old books, a large number of valuable remarks were made which could not be classified. We have therefore added to the lower part of the page a complete list of the various conditions, diseases, and abnormalities, which may be encountered in such an examination. Instead of expressing in writing any condition which it is desirable to note, all that has to be done is to *underline* the condition present. For instance, in describing the state of the teeth, instead of writing out, as many did before, "fairly clean," all one has to do is to underline these words under "state of teeth." This part of the work has been headed "optional," but the Committee hope that all examiners will exercise the option, as the value of the examination is thereby greatly enhanced without entailing much extra labour. It should, however, be noted that the lower part should be filled in for all the cases examined in a series of examinations, or not at all, as otherwise they will be of no use for the deduction of averages. The really important matter, however, in making an examination, is to fill in the chart accurately, carefully noting the presence or absence of each tooth, and its condition—in fact, using the chart with the symbols provided—even if the lower columns are not filled up.

We can recommend these new case-books to you as having stood the test of trial, and both Mr. Spokes and Mr. Denison Pedley, who have had large experience in examining under the old system, have expressed themselves not only as much pleased with the new diagram, but that the arrangement of the conditions likely to be encountered on a separate page for each child is highly satisfactory, and a great improvement on the old books. The new books are less bulky and unwieldy than the old, and it is proposed to issue them in books of 50 and 100 sheets.

This work of collective investigation has excited the attention of dental practitioners in other countries, and we are not without hope that some of them will be induced to conduct investigations on similar lines, so that we may be enabled to compare our results with those in other parts of the world.

In submitting these proof books and sheets, the Committee desire to be empowered to order a sufficient number to supply all members of the Association desiring to take part in the work.

Your Committee have to express their obligation to those gentlemen who have conducted the examinations of the schools embodied in this report, namely:—Hanwell, R. Denison Pedley and Sidney Spokes; Sutton, R. Denison Pedley; "Exmouth," W. B. Paterson and H. Baldwin.

The Committee have to report with regret the resignation of Mr. W. H. Fisher and of Mr. E. Lloyd Williams. Mr. Hern retired from the Committee a few months ago, and Mr. Denison Pedley was elected by the Representative Board in his place.

The Committee appeal to the members of the British Dental Association to assist them in carrying on the work, more especially as it is producing very satisfactory results. As instances of that, the Committee would refer to such articles as have appeared during the last year in the medical press, favourably commenting on the work and the necessity for the provision of dental services for school children, and the remarkable address on "Tooth Culture," by Sir James Crichton Browne.

In one large school of 1,000 children, tooth brushes have been provided and provision made for conservative treatment of the teeth by the appointment of a dental surgeon, with the approval of the Local Government Board. In one or two other instances, applications have been made to the Local Government Board for authorisation of similar appointments. Such results ought to encourage a continuation of the work, and as an appendix to this Report your Committee publish a form of Report which has been found useful and effective in acquainting Boards of Management with the results of the investigation of individual schools; the substance matter of such a report can easily be adapted to the requirements of any particular school by merely altering the numbers which had been ascertained by examination.

FREDERICK CANTON.
GEORGE CUNNINGHAM.
LEONARD MATHESON.
W. B. PATERSON.
R. DENISON PEDLEY.
SIDNEY SPOKES.
J. SMITH TURNER.

The PRESIDENT said that as a profession they could not help feeling under a deep obligation to Mr. Cunningham and to Mr. Fisher for the trouble they had taken in that investigation, and the satisfaction they must all feel that persons connected with the management of schools were taking an interest in dental matters.

Mr. G. BRUNTON said he did not rise to criticise the paper which had been read, but rather to compliment the Association upon the progress which had been made in that direction. He had had a little—and only a little—to do with such work, and it struck him from the examination he had made, and those that he had observed being made by others, that there was a very great deal in the subject. He thought it would be a very great step in advance if they could make some definite and clear plan for the guidance of those practitioners who made examinations as to how the examination was to be made. Was the examiner to use the probe, or to dry the mouth? He thought if the probe were used that they would get a far higher ratio in regard to the existence of caries. He was once bold enough to make an assertion to the effect that 90 per cent. of teeth were carious. That saying had become a “classic,” as it had been put in Sir James C. Browne’s address at Cambridge. That statement was made without he (Mr. Brunton) having made any examination at all, but Sir J. C. Browne had since assured him that it was pretty nearly true.

Mr. CUNNINGHAM: May I point out to Mr. Brunton that in these two diagrams here he will find that 88 per cent. of the lower molars are decayed? Might I also ask as a committee man what is our position as to the printing of the report? I think it ought to be printed, and the Committee authorised to provide the necessary number of books.

Mr. BRUNTON: I move the adoption of the report.

Mr. MATHESON: While Mr. Cunningham has been speaking of the Committee, and speaking of their labours in tabulating the information, I think it ought to be known, as I hope it is generally, that it is to Mr. Cunningham that the greater part of the labour is due, and that therefore the major portion of the thanks of this Association are due to him.

Mr. W. HEADRIDGE: I will rise to second the adoption of the report.

The motion was unanimously agreed to.

Mr. CUNNINGHAM: I think this report should be printed. Of course it is true they get it in the ordinary course in the shape of

"Transactions." I think if we were to have a certain number printed the cost would only be small. Therefore it should be printed and distributed to the members of the Association.

Mr. W. B. PATERSON seconded.

It was agreed to unanimously.

A Lantern Demonstration of Photo-micrographs.*

By J. HOWARD MUMMERY, M.R.C.S., L.D.S.ENG.

MR. PRESIDENT AND GENTLEMEN,—Having been requested by our Hon. Sec. to be ready with a short demonstration, I have arranged two sets of lantern slides which I propose to exhibit on the screen and to accompany with a short description.

These sets are illustrative,

- 1st. Of the microscopical appearances in caries.
- 2nd. Of the theory of phagocytosis, or the ingestion of bacteria by the cells of the body.

CARIES.

- 1.—Section of a carious tooth seen under a low power.

This slide is not sufficiently magnified to show the individual micro-organisms, but exhibits very clearly the general aspect of a section of a carious tooth. The transverse splitting has been said to indicate that the caries has taken place in a dead tooth, but this has been disputed, and it is generally considered *not* to be indicative of caries in a dead tooth. It will be noted that the micro-organisms run along the edges of these splits or cavities, so that the spaces certainly existed in the tooth before the preparation was made, and are not in any way the result of section cutting.

- 2.—Micrococci in the tubes of the dentine.

- 3.—The cocci are seen advancing down the tubes in single file.

It is difficult to procure sections exhibiting these single lines of any considerable length, because they are generally cut more or less diagonally to the plane of the tubules. The specimen from which these photographs were taken was a very happy section made by Mr. Pound in which single tubes ran through the whole length of the specimen.

* Read at the Annual General Meeting of the Association, held at Manchester, 1892.

4. Bacilli in the tubes.

5. Micrococci in the terminal branches of the tubules.

As is well-known to us all, caries spreads very rapidly laterally, just beneath the enamel; this is partly due to the anastomoses of the fine terminal branches of the tubules in this situation, and partly to the interglobular spaces which are so frequently found there, but it does not appear that the bacteria spread much in the interglobular spaces themselves, in fact one may search many specimens without finding any traces of bacteria in these spaces—I only remember seeing two specimens, both in the possession of Dr. Miller, in which there could be no doubt that the bacteria had multiplied in the area of the interglobular space. The tissue of the tooth is, however, more porous and destructible here, owing to these imperfections, and therefore would appear to break down very quickly under the influence of the acids to which the bacteria give rise.

6, 7, 8, 9.—As is well known, the so-called leptothrix was formerly assigned a very important rôle in caries. By Messrs. Leber and Rottenstein it was considered to be the sole organism present in the tubes, and Messrs. Milles and Underwood were the first to show that micrococci and bacilli were found in the dentinal tubes as well as the filamentous forms, and they demonstrated them in the tubes of the dentine at the International Medical Congress of 1881. Leptothrix is now considered to be a transition form of many micro-organisms, and the term is best employed in describing these thread-like forms, and not as indicating any particular species of micro-organism.

10.—The leptothrix forms are especially well seen at the margins of the cavities in advanced caries, and are shown in some specimens entering the softened dentine in this situation in bundles and masses.

11, 12, 13, 14.—Towards the margins of the infected dentine a curious appearance is also often met with in transverse sections, the tubes are seen filled with bacilli or micrococci, and filaments of leptothrix are visible making their way in every direction between and around the tubules.

That peculiar condition of the tubes seen in cross section in which they appear to be much enlarged and filled with an apparently homogeneous mass is not clearly understood. In

this specimen that appearance is well shown, and the course of the leptothrix filaments in and around them is very conspicuous.

This is what I have spoken of elsewhere as a secondary invasion of the dentine by micro-organisms, and it takes place, as far as I am aware, only near the margins of the specimens.

15, 16.—Transverse sections of dentine showing the appearance of the tubes filled with micrococci when cut transversely.

17.—This slide from a specimen of artificial caries prepared by Dr. Miller, shows very distinctly the longitudinal segmented appearance which is still very imperfectly understood.

That these segments are probably casts of the enlarged tubules seems to be indicated by the fact that they are dissolved by dilute sulphuric acid. These casts, if such they may be called, are seen to have a central core or channel in many places, and a filament is sometimes seen, suggesting that this central canal may be filled by the dentinal fibril.

18.—The section exhibits very clearly a point which Dr. Miller much insisted on, and which is now generally acknowledged to be exhibited by carious dentine. The specimen from which the photograph was taken was scooped from the bottom of the cavity of decay with a spoon excavator, taking away therefore only softened dentine, but as near to the hard dentine as possible. It shows a considerable area of softened dentine in which no micro-organisms are present. The acid formed by the bacteria has penetrated beyond the point which the bacteria themselves have reached, so that the organisms advance into dentine already softened by the products of their activity and growth.

The reason that the area of softened tissue is much wider laterally (that is transversely to the tubes), than in a forward direction, parallel to the tubes, is very evident. The organisms find a very easy means of penetration in the canals of the dentine and grow very freely there, but they cannot spread laterally until the dentine is more thoroughly softened, although the acids which they produce, easily penetrate the ground substance of the dentine in every direction. Immediately beneath the enamel, however, as I pointed out just now, the organisms can easily penetrate in a lateral direction, because in this situation not only do the anastomoses of the terminal branches of the tubules form a ready means of

distribution, but the imperfect structure of the dentine so frequently seen here, allows of more ready breaking down of the tissue under the influence of the secreted acid.

19. Caries in cementum.

It is not very common to meet with good specimens of caries in cement, as it forms usually but a thin layer where exposed to the action of caries, and decay in cementum often takes the form of a disintegration and solution of the tissue commencing from without.

In some specimens, however, as in the interesting one of Dr. Miller's from which I made this photograph, the caries has followed the lines of the penetrating fibres of Sharpey, showing the organisms filling the canals which were occupied by these fibres. The lacunae of the cementum also become filled with organisms, and the dilatations of these and of the channels of the Sharpey's fibres, cause an appearance very like that of decay in dentine.

20. *Spirillum sputigenum*. This spirillum, probably the motile organism recognized by that father of microscopy, Leuwenhœck, as long ago as 1683, is often found in the mouth in little groups, which are almost pure cultures.

This slide exhibits such a group taken from a cover glass preparation which I prepared from a putrid tooth pulp. This organism is not connected with caries, it is found in every mouth, more especially in such situations as beneath the margin of inflamed gums, and in great abundance in badly kept mouths.

So far it has resisted all attempts at artificial cultivation out of the mouth. When first noticed it was said by Prof. Klein and others to be identical with the comma bacillus of cholera but the one fact of its not growing on artificial media is sufficient to show that it is not the same organism, and it is now generally accepted as a distinct one. There are also other comma shaped bacilli found in the mouth and in the alimentary canal which morphologically cannot be distinguished from the cholera bacillus.

21, 22.—Iodoform crystals and micro-organisms. This is an interesting slide prepared from a specimen of Dr. Miller's in a series of experiments on the action of various antiseptics on the bacteria of caries.

The photograph is taken from the pulp of a calf which was

rolled in iodoform crystals and then infected with a mixture of bacteria from decayed teeth.

It is seen that there is a free growth of delicate filaments all over the portions of pulp, and even immediately around the crystals of iodoform. This would seem to prove that iodoform has no power, at all events over the bacteria of caries. Clinically, however, we know that iodoform is useful, and I think we have all found that pulp cavities treated with this substance have in many cases remained for a long time in an apparently aseptic condition. Some experiments of Dr. Ruffer's with sponge grafts in living animals perhaps throw some light upon this question. He found that although iodoform was not a powerful germicide, it attracted leucocytes in enormous quantities. If bacteria were present in the neighbourhood of the crystals, one would expect these leucocytes to exercise their scavenging functions and take up the bacteria. This attraction of the leucocytes may be the cause of the beneficial action of iodoform in living tissues, although it would of course be necessary to fully confirm these experiments before such explanation can be accepted.

The use of antiseptics in mopping out the cavity of decay before inserting a filling is decidedly advisable, although if a cavity be thoroughly excavated and dried, organisms cannot form acid under a tight-fitting filling, being deprived of the carbohydrates which form their food material, and the peptonising action cannot go on beneath the filling, because the acid has not had the opportunity of breaking down the tissue, by removing its lime-salts, so that the peptonizing enzyme can act upon its albuminous basis. Caries is not merely decalcification, it is decalcification plus peptonisation of the animal basis of the tooth substance. I dwell upon this point, because in a recent short controversy with Mr. Sewell in the journal of our Association, he appeared unwilling to allow the existence of this important factor in caries.

The existence of this peptonizing action in very many bacteria is universally acknowledged, and Dr. Woodhead, speaking of dental caries, says:

"It is owing to the peptonising power of these organisms that they are able to carry on the disintegrating process, and we thus see that although the bacilli may not be actually present in all parts of a decaying area, their products, such as

lactic acid and the peptonizing enzyme, are really carrying on the work that ends in the decay of the tooth, perhaps considerably in advance of the bacteria themselves."

I will now show a few slides in illustration of a subject which has lately attracted much attention, but on which of course I can only touch—the theory of phagocytosis, or the power possessed by certain wandering and fixed cells of the body of taking into their interior and destroying bacteria present in the blood and tissues. The principal cells engaged in this scavenging process are the leucocytes, or white corpuscles of the blood.

In this slide from a case of leucocythæmia, in which the number of the white corpuscles is greatly increased, the nuclei are very plainly seen, and although this appears to be multiple, the portions are connected by fine protoplasmic threads.

These leucocytes, like that lowest organism in the animal scale, the amœba, have the power of extending their protoplasm and so surrounding and absorbing into their interior various substances.

Professor Metchnikoff of the Pasteur Institute is the originator and chief expounder of the theory of phagocytosis, and some recent researches of his on the comparative pathology of inflammation have done much to confirm the justice of his views; he shows that in the lower animals "the migratory cells are attracted to, and move towards foreign substances." While many maintain that the destructive action on bacteria is exerted by the serum of the blood either with or without the assistance of the cells, Dr. Ruffer and others maintain that immunity is conferred by the action of the cells and by them alone, and this view was ably defended by Dr. Ruffer at the late lengthened discussion at the Pathological Society.

There is probably truth in both theories, and "the biological and chemical views may really be found to be reconcilable."

It would be an interesting microscopical point to decide with regard to the teeth, if in the case of caries encroaching upon the pulp cavity, the leucocytes can be seen to have taken up the bacteria, as one might certainly expect to find.

1.—A cell from the blood of a guinea pig which had been inoculated with typhoid bacilli. It is seen that the bacilli

have been taken up and absorbed into the cell, to a great extent, clearing up the blood in its neighbourhood. The periphery of the cell is here very plainly seen as it had taken up the staining material—usually the nucleus only comes out distinctly in these preparations. (Plate, fig. 2.)

2.—This slide illustrates the fact that either the phagocyte or the microbe may triumph—recovery taking place in the one case, disease in the other.

The cells have here taken up the bacilli until quite filled with them but the bacilli had multiplied too fast and were too many for the cells, the animal having died in twenty-four hours. (Plate, fig. 1.)

3, 4.—Anthrax bacilli in the cells of the frog's blood. These bacilli show an indistinctness of outline suggesting an alteration or partial digestion of their substance.

These two slides I photographed from Dr. Cunningham's specimen exhibited at the last annual meeting of the Association.

5.—From a slide prepared from the blood of a frog inoculated with tubercle, a disease to which this animal is immune.

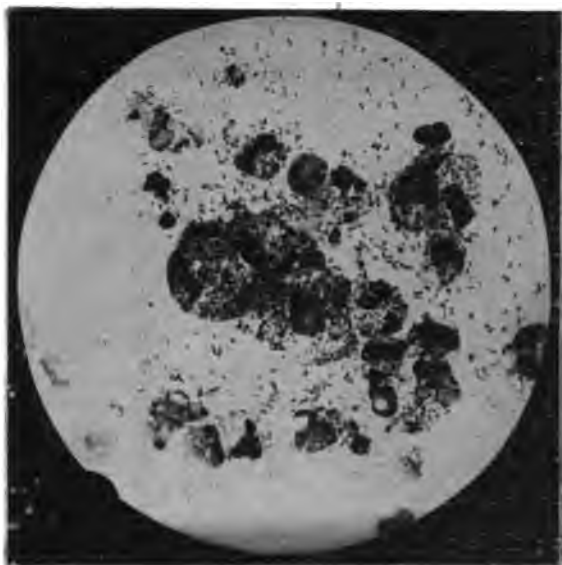
6, 7.—Show how the phagocytes having taken up the bacilli in quantities aggregate into large masses or giant cells—the protoplasm being fused into one mass, enclosing the bacilli within.

In this last slide is seen a similar giant cell and a row of leucocytes lying near, which are crammed with bacilli and may perhaps almost be compared to skirmishers bringing in prisoners. In the specimens themselves the bacteria are much more conspicuous as they are stained a deep red, and the cells blue. In the microscopical room such a specimen may be seen under the microscope, as well as some coloured drawings of the same subject.

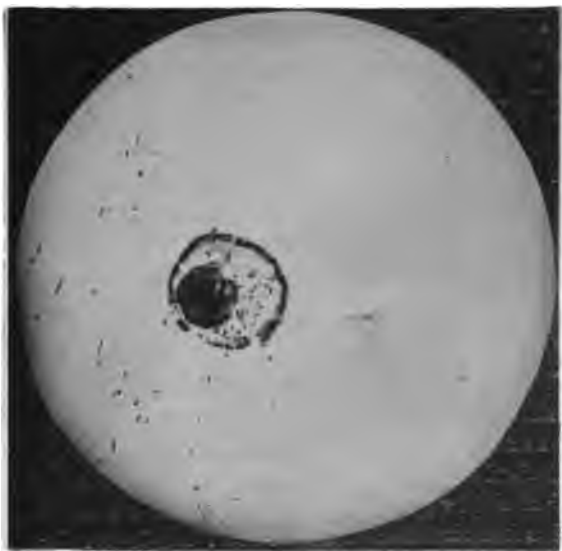
For the specimens from which these last photographs were taken, I am indebted to Mr. Pound. I will not, gentlemen, trespass further on your time on such a busy morning, and beg to thank you for your kind attention.

PHAGOCYTOSIS.

1.

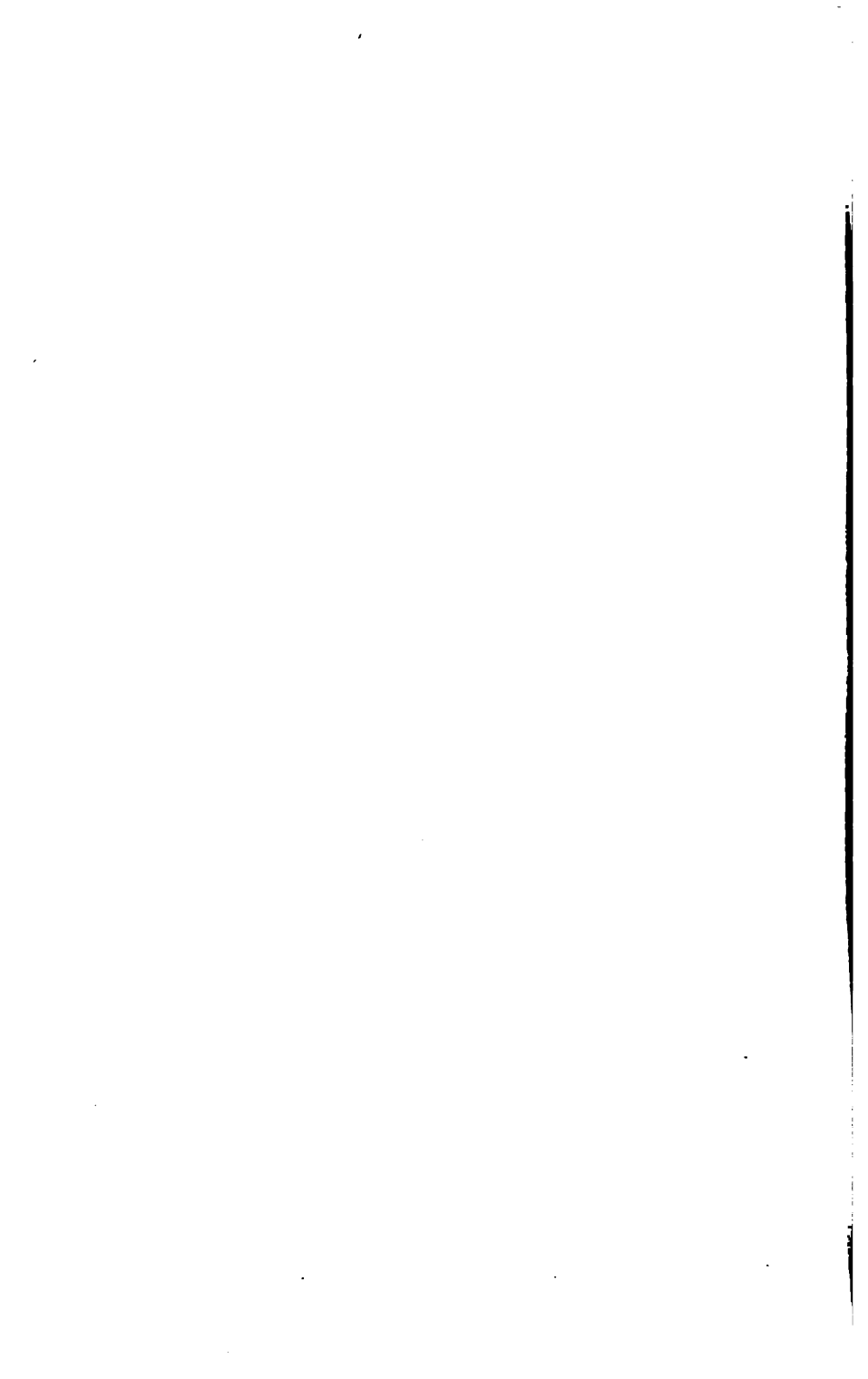


2.



Typhoid Fever Bacilli in Peritoneal Effusion of Guinea-pig.
(From preparations by Mr. Pound.)

1. Leucocytes filled with bacilli.



The Rotation of Twisted Incisors.*

By W. SIMMS, L.D.S.I.

IN selecting a subject whereon to write a short paper for this meeting, it is not unnatural that one should have had in mind the splendid collection of models on view in our local museum, illustrating the subject—growing every year in importance—of the irregularities of the teeth. On one phase of the subject, viz., that in which the extracting of the six-year-old molars is involved, a very important discussion will doubtless arise during these meetings.

The subject of the treatment of twisted incisors is only a very small part of this larger subject of irregularity of the teeth, and compared to the treatment of other and more complicated forms of irregularity, of considerably less importance; but inasmuch as the incisor teeth occupy a position in the mouth where deviation from that which is normal is most open to observation, it has seemed to me that a paper dealing with this subject, although in only a fragmentary manner, would not be without interest.

At the first glance it would appear that to rotate teeth with such simple and practically conical roots as upper incisors is a much easier matter than to push the teeth outwards or inwards, for in the two latter cases there must be displacement of bony material, and the development of new bone, whilst in the former case, by reason of the almost conical shape of the incisor roots, these teeth theoretically should be moved in their sockets with only a slight interference with any structure beyond the periosteum. In these cases, as in many others, the theory has not always worked out in practice, for the treatment has often been found to be both tedious and troublesome, by many of the methods in vogue for the rectification of this irregularity. So true is this that it can occasion no wonder that the operation of immediate torsion has often been and is still by some recommended.

A series of models is shown in the museum by Mr. P. A. Linnell (formerly house surgeon to the Victoria Dental Hospital), illustrating cases treated by him by this method, and it is right to say that in regard to these particular cases, when examined six months afterwards by members of the Manchester Odontological

* A paper read at the Annual Meeting of the Association in Manchester.

Society, they showed no signs of injury having been inflicted, but on the contrary there was satisfactory evidence that the pulps of the several teeth operated upon had remained in their normal healthy condition, while there had been no disposition in the least for the teeth to move back to their original faulty position.

This operation, however, is not one to be lightly undertaken, or recommended, for failure in a single case by consequent necrosis of the tooth would be a difficult thing to satisfactorily explain away; and that this result may ensue is shown by several recorded cases. For instance, Tomes ("Dental Surgery," p. 204) relates one such case in which necrosis of the tooth operated upon ensued, and a case is also related by Coleman ("Manual of Dental Surgery," p. 81), where an upper lateral tooth had to be extracted because of its becoming necrosed, the result of the operation of immediate torsion. In this latter case it was found when the tooth was removed that more than one-half of the fang had become absorbed. Probably more experience is required of this heroic method before absolute condemnation, but in the meantime we may borrow the language of Tomes, and say, "on the whole the operation of immediate torsion is one which is only advisable when for some reason or another the rectification by means of plates [or we will add, by other means] is not available."

It may freely be admitted that the use of plates with wedges or springs to impinge on the opposing angles of the misplaced tooth or teeth, is both tedious and troublesome; for the exact points where pressure may advantageously be made are so small, that by such means it is often exceedingly difficult to get constant pressure exerted on the proper surfaces, and moreover the method requires such a constant supervision and re-adaptation that patient and dentist alike become heartily wearied of the whole affair.

In Mr. Balkwill's method (described in the *British Journal of Dental Science*, 1881, and in Tomes' "Dental Surgery," p. 202), we have, I think, a perception of the principles which should guide the dental surgeon in the treatment of this irregularity. We have the action of an expanding wedge of wood acting on the two knots ligatured on the two labio-mesial surfaces of the two irregular central incisors. But this method is only applicable when the two centrals require rotation, and moreover the ligatures are difficult to keep in position, and the apparatus is somewhat unsightly. But the theory of obtaining a fixed point upon the tooth

to be rotated was a correct one, and suggested to me a plan more simple and satisfactory in connection with platinum or other metal bands cemented on to the tooth or teeth to be rotated, with phosphate or other cement. The use of a band cemented to a tooth is apparently not new, for I find that Dr. Guildford, in his article "Orthodontia," in the "American System of Dental Surgery," published five years ago, states that Dr. W. E. Magill, of Erie, Pa., showed to him twelve years previously (that is now seventeen years ago), bands so cemented to the teeth for the purpose of regulation. If due enquiry were made, we should probably find that long anterior to this, some enterprising practitioner had anticipated Dr. Magill. Be this as it may, there can be no doubt that the inspiration of cementing metal bands to teeth requiring to be moved was a happy one.

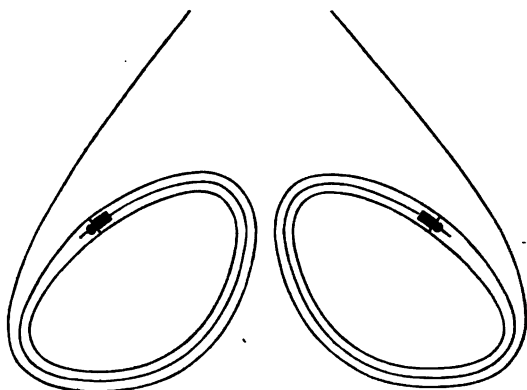
In the method I demonstrate to-day, platinum or other metal bands (of three or four gauge), are fitted and cemented to the teeth to be moved, previously however soldering an eyelet to each band on the labial aspect, in order that suitable attachment for a ligature may be obtained. (Portions of the platinum tubes in tube teeth may be used for this purpose, or the tubing sold by jewellers as silver joint-wire; in the latter case silver solder must be used to join the two metals together.)

In the case of the two centrals requiring rotation, the following is the procedure adopted, after the bands have been carefully cemented on to the teeth, which it is important should be thoroughly dried previously. Two lengths of white silk-covered elastic are taken (of the size to go through a tube tooth) and a knot being placed at each end, each piece is separately passed through the eyelet, and wrapped round the tooth twice in the way it is required to be moved, the knot preventing the silk being drawn through the eyelet; tension is now put upon the two long ends, which are firmly tied together over the labial surfaces of the teeth. It will be seen that the teeth, in order to relieve themselves from pressure, are obliged to rotate; and this they do, without discomfort to the patient, in a space of time very much less than when plates are worn.

The method of applying the elastic is shown in the accompanying illustration, the inner lines representing the platinum bands (supposed to be cemented on the irregular teeth), the outer lines the elastic, the two free ends of which are to be tightly tied together. On the less frequent form of irregularity, that is, where

the dental angles of the teeth are turned towards the labial surface (shown by turning the accompanying illustration upside down), the elastic ligatures are turned round the teeth in the opposite direction.

When the teeth are straight, an impression of the teeth in godiva or stent should be obtained, and the bands should then be taken off and placed in their correct positions in the impression; the model may now be made in plaster, and the two bands being soldered together in the position they occupy on the model, must be re-cemented on the natural teeth, and remain there till the teeth are firmly set in their new position.



In cases where one tooth only requires to be rotated the same principle is applied, but in these cases one of the bicuspid or molars of each side must be banded, in order that attachment may be made and equal pressure maintained. In some cases ligatures may be attached to these teeth without banding.

The bands recommended for attachment to the bicuspid and molars are the matrices known as Levett's matrices. These are so thin as to go between any teeth. They should be carefully fitted to the teeth, and then taken off and strongly soldered with tin. It is unnecessary to solder any loop on them, as a hole may be punched through the free end of the band, which serves admirably for the attachment of a rubber, or other ligature. In the case of rotating one tooth only, a double ligature of silk-covered elastic is brought round the tooth once or twice in the

direction it is required to move, and the ends being brought to the labial surface, one end is tied to the banded tooth on the right side, and the second end to the banded tooth on the left side. This, however, is on the assumption that the tooth is required to merely be rotated; if beyond that the tooth is to be drawn to the right or to the left side, then in such case the tooth to be rotated is ligatured to the tooth of one side only, viz., that on the side in the direction of which the tooth is required to travel.

The silk-covered white elastic recommended is far superior to ordinary rubber, both for the above and other similar purposes; in the first place it very rarely breaks, and secondly, it may easily be tied, and the knot never slips.

The size found most useful is about the thickness of pivot wire, and this may always be drawn through the eyelet by a loop formed of two strands of ordinary waxed silk.

While the above methods are chiefly recommended as doing away with the necessity of wearing a plate, the same principle can be applied when a plate is used, and various modifications will readily suggest themselves to the dental practitioner.

A New and Portable Apparatus for the Administration of Oxygen with Nitrous Oxide.*

By FREDERIC HEWITT, M.A., M.D., CANTAB

ANÆSTHETIST AND LECTURER ON ANÆSTHETICS AT THE LONDON AND CHARING CROSS HOSPITALS; ANÆSTHETIST AT THE DENTAL HOSPITAL OF LONDON, AND AT THE NATIONAL ORTHOPÆDIC HOSPITAL.

AT the meetings of the British Dental Association in 1889 and 1890, I ventured to draw the attention of the members present to the advantages of employing oxygen with nitrous oxide, and I described the apparatus which I then considered to be the most efficient for administering the mixed gases. Since those meetings I have continued the investigation of the subject, and in a recent paper at the Odontological Society of Great Britain I have placed on record the results which I have obtained.

Up to the present time I have administered oxygen with

* Read at the Annual General Meeting of the Association, held at Manchester, August, 1892.

nitrous oxide in more than 1,000 cases, and am perfectly satisfied as to the superiority, *in most respects*, of the nitrous oxide and oxygen anæsthesia over that produced by nitrous oxide alone. Perhaps I may be permitted, before describing the apparatus which I now employ, to briefly place before you the chief differences between the two agents—nitrous oxide free from oxygen on the one hand, and nitrous oxide with a suitable proportion of oxygen on the other. They are as follows:—

NITROUS OXIDE FREE FROM
OXYGEN.

1. Very rapidly produces anæsthesia.
2. Only a very short inhalation possible.
3. Snorting and "stertor" usually present; and sometimes a tendency to embarrassed or obstructed breathing.
4. Features dusky or cyanotic.
5. Irregular muscular twitchings ("jactitation") very common at the acme of anæsthesia.
6. Average available period of anæsthesia about 30 seconds.
7. Recovery very rapid.
8. After effects (headache, giddiness, nausea, and vomiting) very rare.

NITROUS OXIDE MIXED WITH
OXYGEN.

1. Rapidly produces anæsthesia but not quite so rapidly as nitrous oxide *per se*.
2. Continuous inhalation possible.
3. No such symptoms.
4. Colour of features preserved or only slightly altered.
5. No such phenomena observed.
6. Average available period of anæsthesia about 44 seconds.
7. Recovery rapid, but not quite so rapid as with nitrous oxide *per se*.
8. After effects exceptional, but a greater liability to them than after nitrous oxide alone, probably because of longer inhalation.

From the above statements it will appear that in comparing the two agents we have to weigh the advantages of the one against those of the other. In addition to the points referred to, it must be borne in mind that the administration of oxygen with nitrous oxide necessarily involves a little more attention to detail, and perhaps a little more skill than are essential with nitrous oxide alone. As to the rôle played by oxygen in the mixture, it is curious that there should exist so much misapprehension. I need hardly say that oxygen is

not to be regarded as an anæsthetic. But it permits us to obtain the full effects—often fuller effects than would otherwise be possible—of nitrous oxide, by reason of its supporting respiration for that length of time which is essential for the introduction of a sufficient quantity of the anæsthetic gas into the circulation of the patient. Oxygen is therefore a vehicle for nitrous oxide. There are of course many cases

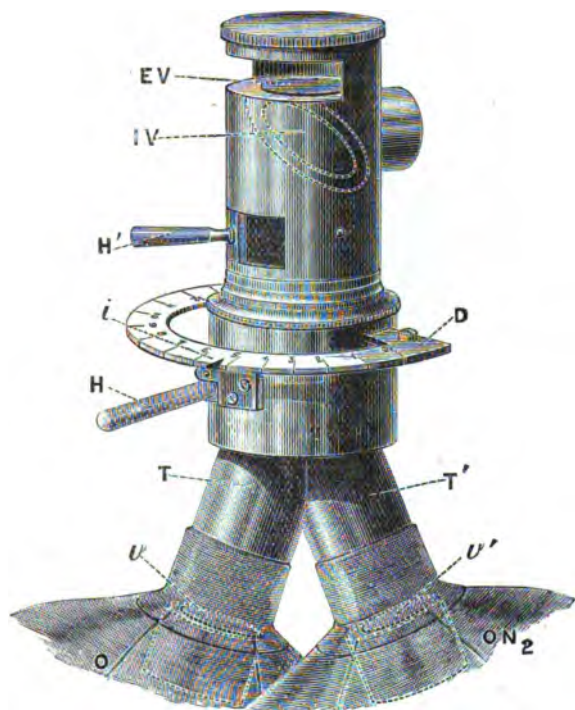


FIG. 1.

in which no such vehicle is needed—in other words, nitrous oxide itself fulfils every indication. But we often meet with cases in which the anæsthesia from nitrous oxide itself is inconveniently short, with others in which the “jactitation” interferes with the operation, with others in which it is questionable from the condition of the patient (anæmia, pulmonary trouble, &c.), whether an anæsthetic is advisable,

and it is in these cases that oxygen comes to our aid and enables us to secure a good anæsthesia from nitrous oxide without the development of any asphyxial phenomena.

The apparatus which I now have the pleasure of introducing to your notice is not only far more portable than its predecessors, but it has the additional advantage of permitting the administrator to vary, at will, the proportion of oxygen to the nitrous oxide, so that every case may be successfully anæsthetised. The chief difficulty which had to be overcome in devising a portable apparatus was that of providing for very

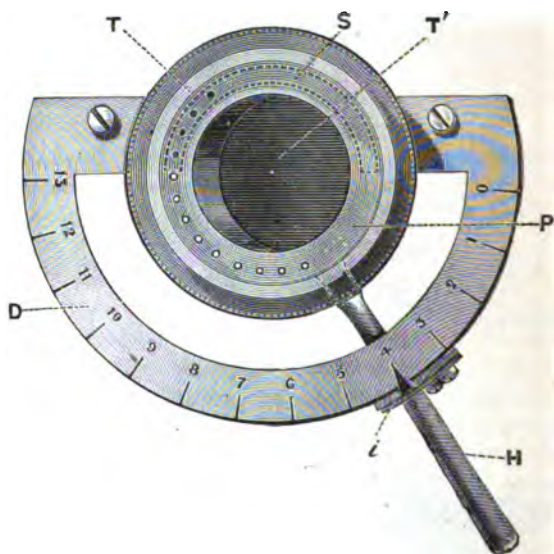


FIG. 2.

small increments or decrements of oxygen. Hillischer's apparatus, which is used in Vienna, although portable enough, is open to the great objection that its oxygen inlet does not admit of fine enough sub-division—in other words, by a very slight movement of the indicator, too great an increase or decrease in oxygen is effected. I overcame this difficulty by making the oxygen, on its way from the bag to the face-piece, pass through minute circular holes, any number of which could be opened or closed at a time. Two india-rubber bags

are employed: one for nitrous oxide, the other for oxygen (fig. 1, ON_2 and O). These, which are fed from cylinders worked by the foot, are attached to two metal tubes T' and T. Where the tubes join there is an arrangement by which oxygen may be added to the current of nitrous oxide to the desired extent. Above this regulating arrangement with its dial (D), indicating handle (H), and indicator (i), there is a two-way stop-cock, which allows, by the movement of its handle (H') either of air or of the mixed gases being breathed. In order to permit the free escape of each expiration, two flap-valves, one an expiratory (EV), and one an inspiratory (IV) are provided. The tubes (T and T') also possess flap-valves (v and v') to prevent the contents of one bag passing over to the other. The oxygen tube T is considerably expanded above, so that the nitrous oxide tube may pass up through its middle. Oxygen thus travels along the circular channel left between the tubes, whilst nitrous oxide passes along the inner tube. Fig. 2 shows the central nitrous oxide tube (T') and the expanded oxygen tube T. The space left between the nitrous oxide tube and the expanded oxygen tube is closed in by two circular plates, the upper of which (P) revolves by means of the handle (H) upon the lower, which is fixed. The upper plate has 13 holes in it. The lower has a long slot (S) shown in dotted lines. Now when the handle (H) is turned, so that (P) revolves, one or more holes can be brought over the slot in the lower plate, and be thus rendered available for the passage of oxygen. In fig. 2 the indicator points to "4" on the dial: i.e., four holes are opened for oxygen and nine are closed. *By this plan a very small increment or decrement in oxygen is represented by a very considerable excursion of the indicator along the dial plate.* Notwithstanding that I have made a large number of experiments with the object of ascertaining what percentages of oxygen pass through these holes, I find it impossible to give any reliable averages, owing to the variations in pressure which must to some extent occur in the bags during the administration. All that I can say is that when both bags are kept partially distended and one hole is open, a very small percentage (something between $3\frac{1}{2}$ and $6\frac{1}{2}$ per cent.) of oxygen will come through, and that each additional hole turned on represents something like an additional 1 per cent. or $1\frac{1}{2}$ per cent. of oxygen. In actual practice all we require is an ap-

paratus which will allow of very small increments and decrements of oxygen. Should one bag ever be allowed to become fully distended the regulating apparatus will, of course, fail to work as such. If one bag be allowed to become more distended than the other the percentage of its gas will, of course, be higher than when the bags are of equal size. The apparatus here described allows (1) air, (2) nitrous oxide, or (3)

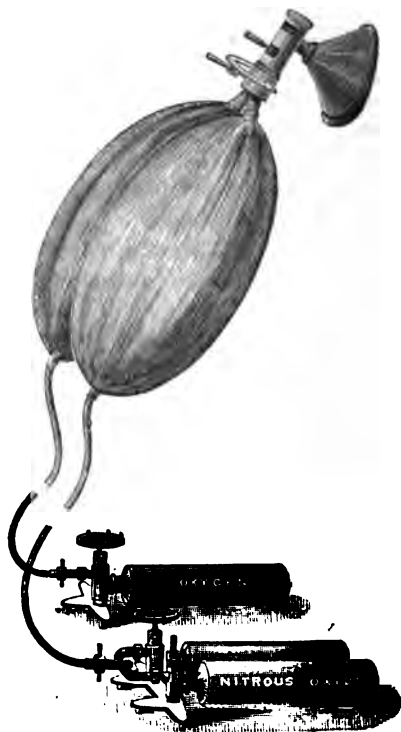


FIG. 3.

nitrous oxide mixed with a proportion of oxygen, to be freely respired through valves at the will of the administrator.

When ready for use the apparatus has the appearance represented in fig. 3.

Before commencing the administration the anæsthetist should make sure that he has a sufficient supply of the two

gases in the cylinders. In the next place, it is important not to charge the bags till immediately before the inhalation. The face-piece should be one which is capable of being applied to the face with the utmost accuracy, as a want of co-aptation which, in the case of nitrous oxide alone would not be detrimental, would, in the case of the mixture, be likely to lead to partial or complete failure. The valves of the apparatus should work efficiently and freely. After passing a small quantity of the gases through the bags, in order to free them from all traces of air, the anæsthetist should turn off the two-way stop-cock, and place the oxygen indicator at "o." Both bags should now be filled to about one-half with their respective gases, and the face-piece applied. Air will now be breathed freely through the apparatus, and the sound of the acting valves will prove that the face-piece fits well. The patient should be instructed to breathe freely and moderately deeply, "in and out through the mouth." This is important, for, as he commences to breathe, so he will probably continue when the mixture is admitted. When the administrator sees and hears that breathing is free, and not till then, he should fix the oxygen indicator at "2" and turn on the mixture at the two-way stop-cock. Nitrous oxide with a small percentage of oxygen will now be breathed. After a few seconds the oxygen indicator may be turned to "3," and in a few seconds more to "4." In children, anæmic subjects, and debilitated persons, the indicator may be moved to "3" and "4" more quickly than in strongly-built or alcoholic individuals. During these manipulations the two bags must be kept as nearly as possible equal in size. It is rarely, if ever, necessary to replenish the oxygen bag during the administration, but the foot must be constantly kept on the nitrous oxide key. Considerable practice is necessary to keep both bags equal in size throughout. Should phonation, laughter, excited movement, or struggling assert itself, the administrator should withhold more oxygen for the present, or even give less of this gas, by turning back the indicator for a few breaths. In forty or fifty seconds from the commencement of the inhalation the indicator may usually be got as far as "5," and in twenty seconds or so more may be allowed to point to "6," "7," or even "8." Generally speaking, it is

not advisable to give more oxygen than this. The administrator must judge from the symptoms of the patient the extent to which oxygen should be given. It is impossible to formulate any definite rules as to the extent to which this gas should be admitted. Considerable practice is necessary, not only to get the face-piece to fit with extreme accuracy and to keep the bags *half distended*, but to know when to give more, and when to give less, oxygen. Whilst too much oxygen will be likely to induce laughter, excited movement, stamping, screaming, &c., and whilst it is right, should such symptoms appear, to give less oxygen, the anæsthetist must be careful not to proceed too far in the opposite direction.

The signs of true anæsthesia are as follows:—The conjunctiva may be touched without any reflex closure of the lid; the eyeballs are fixed or exhibit fine oscillatory movements; the breathing is regular, quiet, or *softly* snoring; and the arms are flaccid. I find the loss of conjunctival reflex to be the best and most reliable guide as to deep insensibility. It is not advisable, however, to rely upon one sign only.

In conclusion, there can be no doubt, I think, that the use of oxygen with nitrous oxide is called for in a considerable proportion of cases. As a friend of mine lately expressed it, we have added another string to our bow, so that we are enabled to successfully meet cases which hitherto have been, in some respect or another, somewhat unsatisfactory. When one is called upon to anæsthetise for a dental operation, the question should now arise: shall the gas be administered with or without oxygen? Whilst there are objections to the routine employment of oxygen with nitrous oxide, there are, as I have attempted to indicate, numerous patients to whom the mixture should certainly be given.

Messrs. G. Barth & Co., of Poland Street, Oxford Street, are the makers of the apparatus which I have described.

A HANDY method of moistening corundum wheels when using them in the mouth, appears in the *Dominion Journal*: "Twist a piece of wire—either tinned, nickel or aluminium will do, as they are always bright—to the end of which fasten a small bit of sponge."

On Some Points in the Administration of Nitrous Oxide Gas.*

By GEORGE ROWELL, F.R.C.S.

ASSISTANT ANÆSTHETIST TO THE DENTAL HOSPITAL OF LONDON.

GENTLEMEN,—In bringing to your notice some practical points in the administration of gas, mindful of the short time at our disposal, I shall limit my remarks to those details which have a bearing upon the use of air in small quantities during the administration, as a means of lengthening the period of anæsthesia.

The effects of nitrous oxide gas are produced, it is practically certain, by the gas being taken into the blood, and thence acting upon the central nervous system. The one essential to a deep anæsthesia is that the gas shall be present in sufficient quantity in the blood, the actual amount needed varying much in different subjects.

That the presence of oxygen, even in quantities often approaching the percentage in which it exists in the atmosphere, and even without pressure, is no bar to the successful action of gas, has been shown by Dr. Hewitt. With air the case is different. When the gas is enough diluted with air it will not produce anæsthesia at all. The degree of this dilution varies greatly with different people. In a florid strong man comparatively little air will suffice, while an ill-nourished pale young girl will require quite a large percentage of air to keep her from becoming narcotised. When it is not so largely diluted as this, but when there is still present in the gas a considerable quantity of air, the resulting anæsthesia is well known to be unsatisfactory, often short, and very often attended by even violent movements and loud screaming or shouting. If we give less air during the administration of the gas than the quantity which produces these undesirable symptoms, we shall gradually find that in a large number of cases the addition of a little air in no way renders the anæsthesia less satisfactory.

But has this admixture of a little air with the gas, uncertain as it occasionally may be from the risk of giving too much air, any advantage over the ordinary method of giving gas free from air? I hope to show you that it often has.

* Abstract of a paper read at the Annual General Meeting, Manchester, 1892.

It is a fact well known to you that after a short inhalation of gas, a short anæsthesia usually results. This is well seen in children; young people, weakly subjects generally, and most markedly in anæmic girls. These are very often the kinds of patients on whom you wish to operate under gas, it is often in this very sort of individual that a long anæsthesia is required, and it is, fortunately, in just these classes of patients that air is easiest to give with the gas, and has the greatest effect.

The great use of giving air with gas is to prolong the inhalation, thus allowing of more time for the gas to be absorbed into the blood, so that we may obtain as large a quantity of gas in the blood as is practicable.

Before I proceed to describe the method of giving air with gas, let me say a few words about apparatus. There are two chief classes of apparatus used in giving gas, those which possess an inspiratory valve, which, while admitting the gas freely from the bag to the facepiece, does not allow of any return flow back into the bag, and those which have no such valve.

By reason of the great rapidity with which gases diffuse, the second class—those without this valve—must always contain a certain quantity of air in the bag before the end of the administration, in spite of a pressure of gas being kept up, and this quantity will vary so much with the amount of pressure, the diameter of the bag outlet, and the force of the patient's expiration, that it is hopeless to attempt to estimate it even approximately.

In practice, this method is not such a bad thing as we might at first sight imagine. When gas is given in this manner, and no air is intentionally admitted, I believe one usually obtains a slightly longer anæsthesia than is obtained by using an inspiratory valve. This would seem to be due to the slightly longer inhalation which is rendered possible, because of the presence of air in the bag from the expirations of the patient. But where one recognises the value of some air, and the fact that the amount of air which will give the best results varies so much with different patients, it is surely more scientific, and I shall endeavour to show you more useful in practice, to have as complete control as can be gained over the quantity of air admitted.

The apparatus that I have found the best is Dr. Hewitt's stopcock and face-piece, leading directly out of the bag by a free air-way. It is made by Messrs. Barth & Co., of London. It possesses hinge-valves of thin india rubber, light, easily moving, and more accurately adjusting than any other kind of valve with which I am acquainted.

Its chief advantages are (1) the readiness with which the close fitting of the face-piece can be tested by the slight noise made by the closure of the valves; (2) the free air-way which exists; (3) the degree of control one has over the air which it may be wished to give or to exclude; and (4) its simplicity.

With all forms of apparatus the advantage of some air, as allowing a longer inhalation of the gas and hence producing a longer anæsthesia, has been, and is often now obtained by causing the patient to re-breathe backwards and forwards into the bag after a certain number of breaths have been taken. I only allude to this to condemn it as a routine practice, because of, firstly, the impossibility of estimating even comparatively the amount of air breathed with the gas; secondly, the uncleanness of the practice; and thirdly, the constantly worse after-symptoms met with, such as headache and malaise, due no doubt to the re-breathing of the products of respiration.

The way that I give air with gas is this. Having washed out the bag with gas before filling it, to exclude all air, adjusted the face-piece accurately, seen that the valves are acting properly, and established free steady breathing through the mouth, the gas is turned on at the end of an expiration. The patient is now breathing gas practically free from air and is expiring into the atmosphere.

Let me ask you to suppose that we are giving gas from this point to a common type of patient—a fairly well-nourished, medium-sized, somewhat pale young woman. After from twelve to eighteen breaths have been taken, the air-way is quickly opened during an expiration, which shuts off the gas. The next breath taken by our patient is air. After this inspiration, and during the succeeding expiration the handle is quickly turned into its former position, cutting off the air and turning the gas on again. Our patient is now allowed to take five or six breaths of gas, when another breath of air is given, should no phonation or movement appear. It is necessary to

turn the gas off and on quickly, as otherwise a little air may get into the bag. However, with ordinary rapidity in performing this small manœuvre one has practically complete control over the air admitted.

Our patient now takes five more breaths of gas, and then a third breath of air may be given, or she may be kept breathing the gas until the ordinary symptoms of nitrous oxide anæsthesia appear, when of course the face-piece is removed and the operation begins.

In such a patient as I have pictured, two breaths of air will usually give us an anæsthesia of thirty-five to forty-five seconds. If a longer time is needed she may be given four or five breaths of air, with always five or more breaths of gas between them.

This is a typical and easy case. Should any symptoms of excitement appear, it is well to let her have six or eight breaths of gas until the excitement has almost subsided, before giving the next breath of air. It is not necessary that the excitement shall have quite passed away before giving more air. If we leave it till that happens she will probably be too nearly under the gas to permit us to give more air without the risk of shortening the anæsthesia.

It is easy, in case one fears that a full breath of air may cause excitement, to give half a breath only, by turning on the gas again in the middle of an inspiration.

This plan of giving air with gas may be used, speaking generally, in all patients *excepting* :—

1. Those patients who invariably struggle or become very rigid under gas. When this apparatus is used there are very few of these, but I believe a certain number are met with.

2. In alcoholics. When a patient shows marked signs of being a drinker it is well to give no air.

3. In men generally, unless they are pale and weakly, it is better by refraining from giving air to avoid the risk of the excitement that is sure to occur if a little too much air be given. When it is determined to give air to a man the best plan is to delay the act until nearly the close of the administration, when one judges that three or four more breaths will complete the inhalation. By giving one breath of air at this point, another six, eight, or ten breaths of gas are able to be taken. However, if the man is at all robust and strong, I would recommend that no air at all be given.

4. The fourth class of persons to whom I would not give air is composed of those who take a long time to go under gas; here it is obviously unnecessary. No patient can have more than a certain quantity of gas absorbed by the blood, and these patients have probably so nearly reached that condition that any attempt to give air would be likely to lessen, instead of to increase, the quantity of gas in the system at the close of the administration.

To all other patients air may be given, and with ordinary care and a little practice there is very slight fear of any excitement occurring which is likely to be at all troublesome. The first breath of air should be given earlier in weakly, and especially in anæmic people, and later in the reverse conditions.

Let me repeat that the patient's breathing whilst taking the gas must be free, with steady, long, regular breaths. If it should be shallow and jerky it is much harder to know when to give the first breath of air, upon the right determination of which point of time the whole result depends. This is the chief objection to the method I have described, but by the exercise of a little care the advantage of an anæsthesia often ten or fifteen seconds longer than is obtained by the ordinary way renders it well worth a trial in a suitable case.

With children the first breath of air may often be given after six or eight breaths of gas, and often only four breaths of gas given between the breaths of air.

I wish to refer again to the special importance of an adjustment of the face-piece that is quite air-tight when air is intended to be given. A very little leakage here will often let in a large quantity of air, especially as with the apparatus described it is never necessary to work with the bag distended.

As there is more likely to be a little phonation (quite unconscious) with this method than with gas alone, it is sometimes difficult to say when the patient has regained consciousness. A good test is to stop the operation directly the patient can open the eyes, when requested to do so. The power to do this, as a practical point, invariably seems to return before the ability to feel pain.

The results of giving gas and air may be summarised generally by saying that the anæsthesia is nearly always some ten seconds longer than with gas alone. I have seen it many times extend to over one minute.

The chief advantage I would wish to claim for the method is the ease with which it can be practised, without any more apparatus than the usual forms. So that if in the country you want an anæsthesia a little longer than normal, or if you fear that any patient will be but a short time in a condition for operation, it should be a useful additional resource, and this must be my apology for addressing you on a subject so trite as nitrous oxide.*

An Apparatus for Prolonging the Anæsthetic Effect of Nitrous Oxide.†

By STEPHEN A. COXON, L.D.S.

GENTLEMEN,—Before I explain the apparatus I should like to say something about the effect that can be produced. I have never found, in using gas in this way, that it produces the disagreeable intoxication and excitement which sometimes occurs in administering gas to men with thick beards. The reason of this is, on the one hand, that you get your patient thoroughly under gas, and with gas alone; on the other, you get gas and air mixed together from the beginning. Once thoroughly under, a little air is necessary to sustain life if you are going to keep them under for any length of time. And it will not bring on that excitement which would result from a mixture of gas and air during the first period. The patient remains quiet in the chair; there is no struggling, and very little jactitation.

From time to time I have been told that it is positively dangerous to lengthen the anæsthesia produced by nitrous oxide. But in the *British Journal of Dental Science* there is an account of Mr. Brownlie keeping a patient under, with gas and air alternatively, for twenty minutes within a fortnight of her confinement, without the slightest ill effect. And on one occasion Mr. Baily kept a patient under for a like period during an operation. I quote these cases to show that the danger of keeping up the anæsthesia with gas is more in the imagination than in reality. Myself, I have frequently kept

* An account of Mr. Rowell's demonstration appeared in our last issue.

† Read at the Meeting of the British Dental Association at Manchester, 1892.

patients under gas for surgeons in minor operations for periods of ten minutes, where the mouth has not been involved.

Now, gentlemen, I will explain the apparatus. It consists of the ordinary face-piece, and a small curved tube, so as to get easily to the back of the mouth. Get your patient well under in the ordinary way, and on removing the face-piece detach it from the bag and slip the injector on, pass it into the mouth, not just inside, but nearly to the uvula; you will in this way get a very small percentage of atmospheric air. As a rule you can pass the injector behind the mouth prop, and keep it well out of the way of the forceps. You can also use it as a tongue depressor, and often in this way assist the operator. The best position to stand while administering is at the back, or a little to the side of the patient; you are then well out of the way. If you keep the gas bag under your arm you can always bring a little extra pressure upon it, and force the gas out quicker; this will retard the recovery should the patient show signs of coming round too soon. It is very essential to see the mouth is mopped out from time to time, so as not to let the blood get back into the larynx and pharynx, or there will probably be sickness after the operation is over. The time gained by using the injector does away with that hurry that only too often occurs in gas extractions. It is of necessity a somewhat wasteful manner of administering, as you must let the gas leave the injector, under the pressure of a full bag, so as to let it get well into the lungs. But the time gained will more than compensate you for the loss of the gas. The only thing I claim for the apparatus is a lengthening of the time at the operator's disposal with the safest of all anæsthetics. Taking an average you may always rely upon a minute to a minute and a half. But with many patients you can keep them under for almost any reasonable length of time as long as the injector is kept working.

But as an ideal is better enforced by ocular demonstration, you will form a truer idea of its value when you have seen the patient operated on.

[An account of Mr. Coxon's demonstration appeared in our last issue.]

"Observations on Dentistry." *

BY SIDNEY WORMALD, L.D.S., STOCKPORT.

MR. PRESIDENT AND GENTLEMEN,—I wish to call your attention for a short time to a subject of general interest. It is so well known to the profession that any efforts I might make to introduce it would be unnecessary.

Dentistry has a wide field; much has been said and written upon it. It is interesting in its anatomical, physiological, pathological, and practical parts.

I shall be brief in my remarks on one portion, which is practical in its character, namely: "The aim of modern dentistry is conservative, its object being to save natural teeth; that it is believed to be more compatible with the intelligence and progress of the *education* of the profession. The reports of papers given at the Odontological Societies, and the British Dental Association, on the introduction of various means and methods of saving natural teeth, afford the best proof of progress. But there is one point that does not often come under direct consideration.

I do not remember a paper given, or a discussion raised on the question of "Extraction of teeth." It may be it is too familiar, or it may be because of its delicate and tedious character, that makes it strange to approach.

Nevertheless it is an important question; but there appears to be some difficulty, or science would not have passed it by. But while it has been despised and rejected as unworthy of discussion, yet the subject is open for research.

It would be tedious to enter into the various conditions of the constitutions of teeth, and the pathological relations bearing upon various cases, and to give a definite conclusion as to why, and when, teeth should be extracted. These are matters open to reason and discretion. As in surgical operations, dental operations ought to be characteristically the same. The surgeon does not amputate a limb because it is painful; nor should a dentist extract a tooth because it aches.

The mission of the physician is to heal, cure, and save the limb, the mission of the oculist is to cure and save the eye, and the mission of the dentist is to relieve pain, heal, and "save the

* Read at the Annual Meeting of the Midland Counties Branch held at Huddersfield, May 20, 1892.

tooth." May we not say: it is when treatment has failed to cure, then it may become an exceptional case for extraction.

Sir George Humphry, in addressing the students on treatment, said, and advised, "gentleness and kind consideration to the poor as well as the rich. To hurt, whether by finger or the tongue, unless there is real need, is a fault."

If this is so in the medical profession, certainly it is so in the dental profession. Extraction is not in touch with the elements of an Odontological Society. It can only recognise that which is scientific; made so by the accurate observance of facts. In the extraction of a tooth there is no mark of science; no accurate observance is needful, that which was an object for science is lost. No record of the result is necessary, excepting the remembrance of agony and pain. Cruelty and inhumanity ought not to be closely identified with the dental profession. I allude to general extractions; the irregularities and exceptional cases will always come under discretionary judgment and skill.

Dentistry has a higher standard. It pursues a scientific education, which leads directly to a special object of healing by treatment; this is an assurance of safety from inflicting unnecessary danger, suffering, and pain, and runs no risk of injury to health. So that time only is required for science to make practical progress, and do more than keep pace with the theory of education. Arrest the dangerous machine of wholesale extraction, and achieve for our young men who must hail from the colleges a safe and consolidated foundation at the present age. Unless this can be done, how shall dentistry hold her own as a profession? for the handicraftism is so easily recognised and confounded with the true form of dental education, that not only the very destruction of teeth, but all that is involved in the enormous absorption of the alveolar process, and its injurious results, may be held forth as a part of dental education.

If we look back and remember the amount of matter on the question of anæsthetics, we should almost fancy the foundation of dentistry rested on the constant administration of these uncertain and dangerous agents for all its practical purposes. We know the agent, with skilful care, is (in legitimate cases) a boon to the public; but its pure object may be frustrated by overreaching the aim of an anæsthetic, for there are the means which (unless judicious care is taken) may result in questionable sacrifice, and at the same time give a false impression of professional

tooth drawing, and interfere with the progress of a higher standard of education in dental treatment.

We do not consider, because we have arrived at a point when we dare venture to administer an anæsthetic and plough out the teeth and replace them with a line of vulcanite, that it adds anything to the skill or science of dentistry.

We do not believe it sets upon the dental education a crown of completeness or satisfaction. No! not even an expert on anæsthetics who may stand at the chair, full of grave responsibility to govern life from death, holding the means for the destruction of natural teeth for the introduction of artificial, does not give perfect satisfaction; unless he could hold within himself the conscientiousness of all the bearings of the whole question.

I think we may entertain the opinion that we may run beyond the limits of that which would bear the test of justifiable examination. In fact, as Mr. Turner said in his speech, in responding to the resolution proposed by Dr. Ernest Hart, he could not understand how it was that some individuals cut down the education to suit themselves, as if man was nothing better than a money-making machine, and compared such as being satisfied with the sweepings of education. Perhaps Mr. Turner dug as deeply into the mire as he cared to, but with an indignant and an enlightened comparison, he said, "We want a thorough, a profound and extensive, and a wide and high education."

In 1887, when the Irish Branch was inaugurated, Mr. Turner referred to the question of education; it is worthy of notice. He spoke of the high character of the education of the medical profession in literature and science, and of the years of advantage over the dental profession; and held it up as a standard and a guide worthy to follow. He spoke of what the British Dental Association had to do in the way of educating the dental profession, the medical profession, and the public. But while education is progressing, there is some difficulty in reaching the medical profession. They are already educated, and it appears to be anomalous; but the fact is, it is in the form of a mistaken impression, an error which only requires to be corrected. But however great that mistake may have been, we believe the dental profession has made, and is making great progress, and is armed with knowledge to entitle it to stand on its own merits, and claim a higher standard of education. Thus we want the medical profession to *know* that the aim of modern dentistry is to *save* natural

teeth, that extraction of teeth is not a *part* of dental education, nor a part of science. When extraction is needful, it is when science has *failed* to heal and cure. To advise extraction without judicious consideration is a *fault*.

To conclude upon amputation without judicious consideration is a fault against the wisdom of science, and a fault against the power and skill of the healing character of medical science. The dental profession is associated with science, but if the *forceps* is to be the school-master to the public in preference to science as a preserver of teeth, then the dental education is at *fault*, and the question naturally arises, What is the dental profession? Is it a scientific profession? If not, why a dental Act? Why dental colleges? Why diplomas? Why Odontological Societies? Why require a higher dental curriculum? In what does the dental education consist? Let us look at the facts; we take the outvoice of extraction at the present time, and hold it up to the light of education, and consider the *efforts, preparations, inducements, and arrangements concentrated* on this *special* point. We ask the question, Will it bear the test of examination? The verdict is condemnation; surely we do not require a collegiate education to learn how to extract teeth.

Mr. Waite, in responding to the resolution proposed by the Mayor, at the Dental Hospital, Liverpool, made a statement of profound interest. He said, in speaking of the advantages of the hospital, not only was there a large amount of good done in giving relief to those suffering pain, but a good deal was done in the way of saving teeth, and they all knew how much better that was than extracting them when they were aching. This is a statement of facts from the hospital, which is only required to be known—relief from pain, saving the teeth.

We look back to the time when that cruel instrument of torture, "the wrench," was used for the extraction of teeth. We now possess the improved forceps introduced by Sir John Tomes, and the period has now arrived when we can count upon the profession conducting their practices on scientific treatment. "The wrench" has taken its place in the museum as an object of rude curiosity. We do not say the forceps will be entirely placed on one side, but it will be held in subservience to treatment.

We believe the advice of Sir George Humphry will be strictly considered as a question of dental reform in all institutions in relation to treatment, "To hurt and give pain unless there is real

need," is a fault, so that we may anticipate that the time will come when the public will resent and denounce extractions as the sweepings of rude inhumanity of the past, and say, "It is below the education of the dental profession, below the education of the medical profession, and below the education of the age." But let us ask the question, "Where shall we find the college which makes any statement pointing to any form of education on the extraction of teeth?" Let us sound the calendars and hold them up to ourselves for inspection, to the medical profession, and to the public.

It is a fact fully manifested by all the colleges, that the calendars do not contain any such form of education, but give an undeniable proof that the extraction of teeth is not a part of dental education, nor a part of science, therefore we can only classify that which constitutes a recognised dental education.

I will not presume to enter into any form of treatment. But while we know the fact that it is certain in its character, yet there will never be that which will be definite and conclusive to heal and cure all and every case apart from knowledge and skill. Knowledge as to the character of hard, dense, and well constituted teeth, distinct from fragile teeth. Knowledge as to the associated parts. Knowledge of treatment in relation to the various diseases arising from the inflammatory action of the teeth, its preparations, proportions and method of application to each and every case according to the necessity of the distinctive character required. Knowledge to confirm knowledge ascertained by the accurate observance of facts—a knowledge of that which has been written and said by the learned and the scholar; but after all that we may know, and all that will be known, more will be required, for the question is inexhaustible.

This is the fundamental point upon which dentistry stands, which secures on its own merits that which will ever be great and good in its healing character to the relief of suffering and pain and the preservation of teeth. This places the dental profession on a high standard and in a far higher and more important position than a mechanical art. Thus we require our colleges, thus we require Odontological Societies, thus we require a higher dental degree, and all that is good from the British Dental Association.

MINOR NOTICES AND CRITICAL ABSTRACTS.

A Modification of the Operation of Partial or Complete Excision of the Tongue.

BY W. ARBUTHNOT LANE, M.S.

ASSISTANT-SURGEON TO GUY'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

THE suggestion which I am going to make in this brief communication is possibly one that is already familiar to some surgeons; but as I have never seen it used or heard of its use, I think it is of sufficient importance to bring it before the profession. Though it is but a trifling modification of the usual methods adopted, I have found it of the very greatest service not only in diminishing the pain and discomfort which are usually experienced by the patient after these severe operations on the tongue, but also in lessening the danger of pneumonic trouble by the small amount and inoffensive character of the discharge, and in hastening very considerably the process of recovery. The mucus which collects in the mouth and pharynx can also be removed without the patient experiencing any considerable pain, since the sponge is not applied to any raw and sensitive surface. In some cases also the patient retains a fair proportion of the sense of taste. In the case of removal of a half of the tongue the suggested modification consists in the very accurate suturing of the cut margin of the mucous membrane on the dorsum of the tongue to the edge of that covering the floor of the mouth in such a manner that no raw surface is left uncovered by mucous membrane. In some cases it is necessary to alter the form of the portion of the tongue left, so as to make it fit the gap left with perfect accuracy. This is, however, easily met by a little ingenuity, and assistance may often be obtained by loosening the mucous membrane from the floor of the mouth and gum. When it is necessary to remove the body of the tongue, after carefully defining the extreme limits of the growth and giving it a wide margin, a large flap of mucous membrane with a substratum of muscular tissue is sliced off from that portion of the tongue which is of a certainty free from growth, and this flap is accurately sutured with fine silk sutures to the free margin of the mucous membrane in the floor of the mouth, and to that covering the root of the tongue, in such a manner as to cover the whole of the raw surface of cut muscle which is left exposed by the removal of the tongue. This procedure would, of course, not be adopted if there was any chronic inflammation of the mucous membrane, which might form the starting-point of malignant disease; but even in these cases the mucous membrane covering the under-surface of the tongue is probably unaffected, and it is surprising how large an area of raw surface a small portion of mucous membrane can be made to cover. The very vascular flap of muscle and mucous membrane unites with remarkable rapidity to the subjacent raw surface, and in this manner within a few hours of the operation the floor of the mouth is covered by a smooth layer of mucous membrane, instead of by a large inflamed or granulating area discharging abundantly a secretion which rapidly decomposes, and which may be, and often is, readily sucked into the larynx and air passages, where it produces trouble with which we are only too familiar.

As illustrations of the mode of application of this method I will give only two cases, the following brief descriptions of which are, I think, sufficient to indicate its advantages.

J. S—, aged 50, was admitted into Job ward under my care on June 26th, 1890, suffering from a deep epitheliomatous ulcer in the right margin of the tongue in the middle third of that organ. The growth had started in a gumma which had not been treated. There were two or three small glands to be felt in the right submaxillary triangle. These were removed and the lingual artery was tied. The right half of the tongue was removed, with the exception of a portion of its posterior part. The remainder of the tongue was so altered in shape by small incisions that when the mucous membrane covering its dorsum and under surfaces was attached by sutures to that covering the stump of the right half of the tongue and that lining the inner half of the right half of the body of the jaw, no raw surface was left exposed. Within forty-eight hours of the operation these margins appeared to have united. Certainly at no period did any gaping or yielding take place along the lines of suturing. The well-being of the patient after the operation, as regarded freedom from discomfort or pain, the absence of discharge, the ready manner in which mucus could be painlessly, or almost painlessly, removed by sponges from the mouth and throat, together with the very rapid convalescence, was remarkable as compared to the usual course pursued by such cases.

T. O'B—, aged 45, was admitted into Job ward, under my care, on Dec. 9th, 1890, suffering from an ulcerating epitheliomatous growth involving about a third of the diameter of the tongue in its middle third, and extending slightly over its margin to the mucous membrane covering the floor of the mouth. A small gland could be felt in the submaxillary region on the same side. On Dec. 19th the right lingual artery was tied, and three small glands were removed from the submaxillary region. Eight days after, tracheotomy having been performed, the right cheek was split back to the anterior margin of the masseter in order that free access might be obtained to the floor of the mouth on that side. A carefully-planned flap of mucous membrane and muscle was then cut from the left side and tip of the tongue, every care being taken to keep at what appeared to be a perfectly safe distance from the margin of the growth. The rest of the tongue was next removed, and the flap was then accurately sutured into the floor of the mouth by means of silk sutures, which attached it to the divided margin of the mucous membrane both in the floor of the mouth and along the alveolar margin, where it was necessary to remove the mucous membrane covering the floor and to that covering the closure of the stump of the tongue posteriorly. The subsequent course of this case was quite as satisfactory as that of the preceding.

I have used this method on several occasions, and in every case I have felt myself very well repaid for the time and trouble spent in perfecting the operation, and if used with discretion I can see no circumstances under which it could be other than of the greatest benefit to the patient. The increased duration of the operation is of very slight moment as compared to the advantages obtained by it, and in order to ensure the accurate approximation of the divided edges I do not hesitate to split the cheek or perform tracheotomy, although either of these measures might be unnecessary if one were satisfied with the

ordinary mode of excision. The benefit gained counterbalances the slight extra risk.

Since writing this I have read the account of an operation by Dr. Widenham Mansell,¹ for excision of the tongue in leucoplakia or cancer and the utilisation of a portion of the under surface of the organ to fill accurately the gap with the best possible results.—*Lancet*.

Uses for the Oxysulphate of Zinc.

BY W. D. MILLER, BERLIN.

THE oxysulphate of zinc is a material which, as far as I have been able to ascertain, is not as extensively used as, in my opinion, it deserves to be. I personally make such constant and diversified use of it in my practice, and find it for certain purposes so superior to other materials, that I am inclined to believe that a few notes concerning it might be of service to the readers of the *Dominion Dental Journal* who have not made a trial of the material.

The preparation which I make use of is known as Fletcher's Artificial Dentine. Recently other preparations of similar nature have been introduced here in Berlin. I am not acquainted with the preparations on the market in America.

The one I use consists of a white or yellowish-white powder, oxide of zinc, and a syrupy, opaque liquid, whose exact composition I am unable to give. As I have been informed by the manufacturer, "the artificial dentine is an oxysulphate in the same sense that the oxychlorides are oxychlorides; the hydrochloric acid in the basic compound is replaced by sulphuric acid, and it is really a basic sulphate of zinc with a small proportion of free oxide."

When mixed moderately thick it hardens quite rapidly, in fact as soon as it is in the cavity it is hard enough to undergo the necessary trimming. The time required for its setting can, however, be increased *ad libitum* by mixing it sufficiently thin. Like other preparations of its kind, it rapidly deteriorates in quality if any impurities obtain access to it, or if the bottles are not kept perfectly corked.

When fully hardened it has not quite the hardness of plaster of Paris, but is a little tougher. In positions where it is not affected by mastication, I have known it to last as long as two years, though it is solely for temporary purposes that I use or recommend it. It is practically non-irritant; a quantity of the material mixed, being taken upon the tongue, produces about the sensation of a half per cent. solution of carbolic acid. I use it in my private practice and at the dental institute of the University.

1. For capping exposed pulps. When the pulp has been fully prepared for capping I mix a small quantity of the cement to such a consistency that, when it is taken upon the point of an excavator, it does not flow off from it but still is sufficiently thin to hang down in the shape of a minute drop. If a drop of cement of this consistency a little larger than a pin head is brought into contact with

¹ A New Method of Excising the Tongue. (Read at the New Zealand Medical Association, Dunedin, 1890.)

the point of exposure, it spreads itself out over the surface of the pulp, adapting itself perfectly to its irregularities, and forming a much more perfect covering than can be obtained with asbestos, pieces of paper, gutta percha or any other material which cannot be applied in a semi-fluid state; besides, what is of greatest importance, it may be applied without a trace of pressure.

Those who for certain cases favour an antiseptic capping may easily produce the desired action by incorporating the antiseptic into the capping material, though some substances interfere with the hardening. As soon as the cap has hardened, which requires about two minutes (more if the cement was mixed very thin), the filling may be completed. If it is a doubtful case, I finish the operation with *oxysulphate* and wait three or four weeks. If it is a fresh exposure and the pulp healthy, I finish with *oxyphosphate*. If finally I have every reason to exclude the possibility of a failure, I place a layer of *oxyphosphate* over the cap of *oxysulphate*, and complete the operation with a permanent filling material at once. The directions for use accompanying the material appear to me to be fundamentally wrong; my manner of using it will, I am sure, give better results.

2. In the operation of perforating or removing hard fillings from pericementitic teeth, I have found the *oxysulphate* to be of the greatest service. How painful if not unbearable for the patient, and how trying to the operator it is to operate upon a tooth which may be so sensitive that the slightest touch causes excruciating pain, we all know, and yet this operation may be made almost or quite painless. Dry the tooth to be operated upon as well as the adjoining tooth, on each side, with bibulous paper, then mix a large quantity of the *oxysulphate*, say half a thimble full, and plaster it with a broad spatula upon the lingual as well as labial surface of the three teeth, slightly pressing upon it so as to force it between the teeth. It hardens sufficiently in one or two minutes to fix the tooth immovably between the adjoining teeth. The ease with which the operation of removing the filling may then be performed is often a matter of surprise, both to patient and operator. In these cases plaster of Paris may take the place of *oxysulphate*.

3. In like manner *oxysulphate* or plaster of Paris may be used during the operation of filling with gold, for fixing teeth which have become loosened, no matter by what process.

4. I also sometimes make use of the *oxysulphate* for pressing the gums away from the cervical margin of cavities, particularly in wedge-shaped cavities where cotton cannot be made to hold. Dry the cavity thoroughly and fill it with cement mixed rather thick, and when it has begun to harden press upon it with a pledget of cotton. The cement spreads out and forces the gums back at the margin of the cavity.

5. For enclosing applications on cotton of whatever nature I have found the *oxysulphate* vastly superior to gutta percha. Whether I have to make an application to an inflamed pulp, for the purpose of sterilizing the cavity, or disinfecting a root canal or devitalizing a pulp, or obtunding sensitive dentine, I almost invariably cover it with the *oxysulphate*. It is a very difficult matter to cover a pledget of cotton, well saturated with liquid, with gutta percha, particularly in a shallow cavity, but it may be very easily accomplished with *oxysulphate*. The necessary experience in the manipulation of the

material is best acquired by making a few fillings out of the mouth. It is particularly in making applications of arsenic to the dental pulp that the manner of enclosing them has great advantages, as it admits of keeping a local anæsthetic constantly in contact with the pulp, and avoids the pressure which is too frequently a cause of severe pain following such applications.

6. I now and then use the oxysulphate for fixing metallic caps over the teeth in regulating appliances where they are to remain but a short time, also for temporarily setting pivot teeth. In short, any one who becomes acquainted with the material will find it so useful that he will wonder how he was ever able to get along without it.—*Dominion Dental Journal.*

REVIEWS AND NOTICES OF BOOKS.

NOTES ON DENTAL ANATOMY FOR DENTAL STUDENTS.

By JAMES F. RYMER. Second Edition. London: C. Ash and Sons. Pp. 67.

THIS small volume is intended for use just prior to examination, its object being to recall to mind points which have been previously learnt from larger volumes. In some respects this may be said to have been obtained, but its value would certainly have been more enhanced if the details in many places had been fuller; for example, in the rodents and carnivora many salient points in their dentition are omitted, while in the section dealing with eruption of the teeth the author, in referring to the cause, simply states that "the cause of teeth being erupted is yet unknown," nevertheless the student for examination must know at any rate the rough outlines of the theories advanced to account for this phenomena. Other important examination subjects, such as "ivory" prognathism, are unmentioned.

The very useful point in the book is a list of approximate dates with reference to development of the teeth.

MICROSCOPICAL AND LABORATORY GOSSIP.

THE following are amongst some of the new antiseptics which have been produced from coal tar derivatives.

Lysol is a saponified phenol derived from cresols, and contains the higher homologues of carbolic acid. It is said to possess higher antimycotic power than carbolic acid, and to be less poisonous. This preparation is much used in Germany at the present time.

Retinol, a distillation product of pine resin, is a viscid fluid hydrocarbon. It is a non-irritating and stable antiseptic.

Euophen, iso-butyl-ortho-cresyl-iodide, contains 23 per cent. of iodine, and is non-poisonous.

Dermatol, a basic gallate of bismuth, forms a powerful antiseptic and dessicant.

Sulphaminol, thio-oxydiphenylamine, the antiseptic action of which is due to its decomposition in contact with the fluids of the body into sulphur and phenol.

Monochlorophenol is prepared by the action of chlorine on cooled phenol. It is a powerful antiseptic, and less irritating than trichlorophenol.

Camphoid, though only a mild antiseptic in itself, is a valuable adjunct to this class of bodies, as it forms a ready method of applying antiseptics to the surface of the skin, and owing to its composition (of spirit, camphor and pyroxylin) it forms a valuable solvent for substances such as salicylic acid, resorcin, hydronaphthol and many others.—*Discovery*.

To avoid breaking blocks, when vulcanising, grind the top square and prevent the rubber coming over them; in waxing up the case scrape off the wax level with the face of gum, then when the rubber shrinks it will draw over the square ground surface without cracking the thin porcelain. Another caution is not to have any air-bubbles in the plaster at the back of the gum, and to be careful when pressing the flasks together to give the rubber sufficient time to spread and adapt itself over the matrix left by the wax.—DR. BEACOCK, *Dom. Jour*.

THE following is suggested by Dr. Abbot as a useful local application when extracting teeth:—

R ^y Tinct. aconiti rad. ...	...	...	}	āā
Chloroformi ...	...	...
Alcoholis ...	...	...		3j.
Morphinæ Sulp. ...	...	...		gr. xij.

Mix.

A piece of cotton wool dipped in the solution should be held on either side of the tooth during the operation.

DR. BEACOCK, writing to the *Dominion Dental Journal*, advises the following plan for keeping the rubber down in place when treating a cavity on the anterior surface of a lower molar when the bicuspid is missing :—"Take a thin piece of metal, fit it neatly between the teeth, and when the rubber is adjusted, press it firmly down, and it will carry the rubber below the edge of the cavity and hold it there."

FOR quickly drying cavities, after applying the rubber it is stated that a good plan is to fill the cavity with chalk and then blow it out with a chip blower.

THE following is recommended in the *Ohio Journal* as a cream dentifrice :—

Prepared chalk	...	...	...	1 ounce
Castile soap, in fine powder	...	...	...	1 ounce
Oil rose geranium	...	...	...	8 drops
Carmine	...	...	...	10 grains

Glycerine a sufficient quantity.

Rub the chalk, soap, carmine and oil geranium thoroughly together to a fine powder, and gradually incorporate the glycerine until of the proper consistence to run into metal tubes.

IN shaping steel care should be taken during the process to hammer all sides equally ; unless this is done the density will vary, and in the operation of tempering the instrument will probably spring or warp out of shape.

FOR burnishing aluminium a mixture of equal parts of rum and olive oil will be found useful.

By standing, the powder of "osteo-plastics" often becomes impaired by absorbing moisture. To remedy this it should be heated over a sand bath in a porcelain dish.

THE soldering of aluminium, which has long been a difficult problem, has been recently solved, for by sprinkling the surface to be soldered with chloride of silver, and melting down, the soldering is effected simply and satisfactorily.

THE JOURNAL OF THE
ANNOTATIONS.

DENTAL LEGISLATION IN NEW SOUTH WALES.—Although there are many amongst us who are more or less dissatisfied with the results of recent legislation for our profession at home, there seems to be a widespread desire amongst our colonial brethren to follow in our footsteps, and by enactments similar to that which we possess to secure a professional position for dentists, and by systematic education to provide the public with a class of gentlemen who will serve them efficiently, and also in a truly professional spirit.

New Zealand and the Cape Colony have been moving for some time back in this direction, and now we have before us a Bill to provide for the registration of dentists qualified to practise in New South Wales. We wish our brethren abroad every success in their laudable efforts, and hope that they may succeed in securing for themselves and the colonial public, if not all they ask, at least sufficient for them to form a solid foundation on which to rear a professional and educated class of dental practitioners. The Bill follows very much the lines of our own Act, but in mentioning the qualifications necessary for registration, after specifying certain conditions, the following significant disability is named, "but a person who has practised as an extractor of teeth only shall not be deemed to have been engaged in the practice of dentistry." How far this provision, if allowed, will keep the administrators of the Act up to the proper level of vigilance remains to be seen, but it is obvious that our sad experience of wholesale registration is not to be repeated in New South Wales if the promoters of the Bill can prevent it.

WE cannot over here enter into the spirit of colonial legislation, but there is a degree of thoroughness in their method which seems to lead to a rigidity of definition in itself dangerous to the future of this Bill if it become law. For instance, for the construction of this Act, "dentistry" is defined as "the extracting and stopping of natural teeth, and the fitting and adjustment of artificial teeth." We doubt if this limitation of the field of practice would meet with the approval of any of

those amongst us who think that everything is to be gained by legislator's definitions.

ALONG with this Bill we have sent to us "a Memorandum and Articles of Association of the Dental Association of New South Wales." We notice that the same extraordinary definition of dentistry is adopted, and that certain conditions are imposed in these Articles which are hardly compatible with our ideas of a voluntary association.

We do not see by whom the proposed Bill is backed, neither do we find amongst the lists of officials of the new association the names of those whom we have hitherto considered the leading practitioners of dentistry in New South Wales; and if there is to be legislation and an association of dentists we sincerely trust that the older well-known practitioners will remember the duty which they owe to their profession, and see that both measures receive the stamp of their experience and approval.

DENTAL ASSOCIATION OF VICTORIA.—The third annual report of the Council of the Dental Association of Victoria which we have recently received is certainly one on which the members of that Association are to be congratulated. The Association now numbers fifty-six members, and at the present time has as its President Dr. Springthorpe, Mr. John Iliffe being Vice-President, and Messrs. A. R. Clarke and Alfred Reeve respectively Hon. Sec. and Treas. Unfortunately, during the year some property, which had been presented to the Association by Mr. L. J. Blitz, was partially destroyed by fire. During the year papers have been read at the quarterly social evenings of the Association on "The Status of Dentistry," by Mr. Horace Stevens; and "Cocaine," by Mr. F. H. Baker. At the Council meeting held in December, a discussion arose as to the advisability of communicating with the Dental Board upon the question of making Latin an optional subject at matriculation for dental students, instead of it being compulsory as at present, but we are pleased to see that the general conclusion arrived at was that it was essential for the carrying out of a high and beneficial curriculum of dental education. At a subsequent meeting in February the question was debated of the election of the members of the Dental Board. The future success of the Association certainly seems to be

ensured, and only requires the hearty co-operation of the members of the profession in that part of the world to extend its influence.

SCHOOL REPORT.—The School Report which we print in this number of the Journal is well worthy of careful perusal on the part of our readers. That much good will result from the labours of this committee is undoubted, and already we are constantly hearing of fresh dental appointments at institutions where previously the teeth of the inmates were uncared for. With regard to the School Committee's reports, we agree with a recent correspondent to the *Manchester Guardian*—"that as they gain the completeness which results from experience they will become more and more interesting, and indirectly exercise a more important influence upon the public health, at present undreamed of by the public generally."

IN connection with this subject we regret to see that Mr. W. M. Fisher has resigned as a member of the committee, but though officially lost we are quite certain that he will still take as deep an interest as ever in the subject.

At the recent annual conference of the Scottish Branch of the National Association of Reformatory and Industrial Schools which was held at Dundee, he drew attention to the condition of teeth existing in industrial schools. He referred to the dental statistics of two schools, which showed a large amount of dental disease, and pointed out that in those schools the bodily health was good in all other respects. He urged that the attention of directors and teachers should be drawn to this weak point in the health supervision.

It is on such occasions as the one at which Mr. Fisher was present that so much good can be done, and our progress will certainly be quicker if on such fitting opportunities we rouse the attention of directors and teachers to the importance of the subject.

PAPERS UPON ANÆSTHETICS.—WE would draw the attention of our readers to the papers upon anæsthetics which appear in this number, for their reading will be found not only interesting, but also very instructive. In one, Dr. Hewitt gives an account of his apparatus for administering gas and oxygen together, while

Mr. Rowell's, upon the usefulness of small amounts of air during administration, is important as showing how, by very simple means, the anæsthetic effect of gas can be prolonged. Mr. Coxon, too, in a short paper again explains his method of prolonging anæsthesia.

THE MEDICAL SCHOOLS.—We are pleased to see that amongst the addresses delivered on the occasion of the opening of the winter session of the Medical Schools that that at University College was delivered by Mr. S. J. Hutchinson, the Dental Surgeon to the Hospital, and formerly President of the Odontological Society. In the course of his remarks he referred to the Lords' Committee on Hospitals, and the coming into force of the five years' curriculum for the conjoint board. He also dwelt upon the anomaly that a London medical student who has gone through a five years' curriculum, who has passed many severe and searching examinations in medicine, surgery and midwifery, and whose opportunities for clinical studies were unequalled, should not be able to style himself legally by the title "Doctor." He urged that all who had fulfilled the curriculum prescribed by the Medical Council, and had passed the necessary examination, should be legally entitled to the use of that title. He alluded to the fact that the State, after subjecting the medical student to a severe ordeal, did not on its part protect him, when qualified, from the army of quacks. He thought the day was not far distant when it would be impossible for any of these gentry to practise any form of the healing art unless they were entitled to be registered.

DENTO-ETHICAL.—We copy the following, which bears upon the ethics of change of address, from the columns of the *British Medical Journal* :—

"Practitioner writes : 'I am leaving my present consulting rooms and surgery for others. This occurs through my landlord. Is there anything unprofessional in my sending a circular to each patient whose name is in my ledger, on the occasion of moving into new premises ?'

"To our correspondent's special question our reply is in the affirmative, to which we may add that when impracticable to notify personally the change of residence, the most unexceptionable mode is to transmit an autograph note, or a carefully-executed

facsimile thereof on note paper, to the *bonâ-fide* patients of the newly-located practitioner, or to enclose an ordinary address card with 'Change of Address' inserted at the top—the old address in the lower right corner being defaced by a black line, and the new one engraved in the left-hand corner, or *vice versâ*."

We also copy the following :—

ADVERTISING DENTISTS AND MEDICAL TESTIMONIALS.—The dental profession has recently held its annual meeting at Manchester, when both the retiring and incoming President alluded in strong terms to the various methods adopted by advertising dentists to evade the Dentists Act, and letters have appeared upon the subject in the columns of the *British Medical Journal* from a medical man in Manchester and two of the leading dentists in London. One of them, Mr. Morton Smale, referred to the support given by medical men to the advertising or unqualified or unregistered dental practitioner. An example of perhaps one of the worst forms of this has been sent to us. It is to be regretted that a gentleman holding qualifications such as those appended to the signature of the letter could be found so far to forget his own dignity and the honour of a younger branch of the medical profession as to write a testimonial to a person guilty of such an advertisement. The advertisement and testimonial are as follows, but for the credit of our own profession we have erased the name of the gentleman who wrote the testimonial, but hope, nevertheless, that he may in the future cause the publication of both his name and testimonial to be withdrawn :

"Artificial teeth. A complete set for £1 1s. ; single tooth, 2s. 6d. A written guarantee for five years with every set of teeth. Misfits remodelled, no matter where made, and cases repaired. Country patients supplied in one visit. Teeth scaled and filled. Painless extractions with gas. These teeth are fitted by atmospheric action and without fastenings of any kind ; they are adjusted without extracting loose teeth or stumps, and do not give the slightest pain. Testimonial from Dr. ——— :

"Scarborough, May 3rd, 1890. I have much pleasure in rendering my testimonial to the very superior workmanship in your dental department, not only from those supplied to myself, but from several others I have met with since you have opened your Scarborough branch ; and from your moderate charges,

either for a few or a complete set of teeth, I have no doubt you will meet with every success. ———, M.D., M.R.C.S.

"The London Dental Supply Association, 24, Westborough, Scarborough (over Cox's Toy and Fancy Repository). Attendance every Thursday, from 10 a.m. to 4.30 p.m. Also at Ludgate Hill, London; and 52, Whitefriar gate, Hull." (*Scarborough Evening News*, August 27th, 1892.)

PARTNERSHIPS BETWEEN MEDICAL MEN AND DENTISTS.—In the same number a correspondent writes asking if "a legally qualified practitioner would be likely to incur the censure of the General Medical Council by entering into partnership with a legally qualified and registered dentist, one doing the medical part of the practice and the other the dental, or acting as an assistant to a registered dentist." The answer given to this query is as follows:—"We know of no legal objection to a partnership between two practitioners, each of whom is duly qualified and registered by the General Medical Council, though the particular combination suggested is, we believe, unusual."

DEATH FROM SWALLOWING ARTIFICIAL TEETH.—We are sorry to have to record a case of swallowing of artificial teeth, which terminated fatally. The patient, a woman, aged 44, had been wearing an artificial tooth upon a metal plate, which she swallowed late one night and did not trouble to consult a medical man till the following morning. The latter sent her to Guy's Hospital, when an unsuccessful attempt to remove the plate through the mouth was made. Œsophagotomy was then performed, the plate being removed, but unfortunately the patient gradually sank, dying from blood poisoning, an abscess forming on the chest. In our next issue we hope to give a more detailed account of the case.

DENTISTRY IN MALTA.—Good things in the dental world are few and far between, but according to a correspondent of a Scottish paper which has come to our notice, Malta apparently lacks the benefit of a good dental practitioner. The population of this island is 350,000, and of this number about half are English, and in addition there is a large influx of visitors, so it certainly seems that an excellent practice can be made there without any difficulty.

COCAINISM.—An interesting case of the cocaine habit is recorded in the *Journal of Mental Science* for July. The patient, a nurse, had been previously addicted to the use of morphine and laudanum, and had commenced taking cocaine about eight months previous to her admittance to Bethlem Hospital. She at times took twenty-four to thirty-six grains in a dose, though the general quantity was about ten grains. After a dose of the latter amount she generally felt an inclination to work, whilst sitting, for about the following six hours; while later there was a disinclination to do anything, with a desire to lie down, but inability to sleep. A feeling of vertigo generally supervened about a quarter of an hour after each dose; palpitation, thirst and anorexia being also present. When admitted she was suffering from hallucinations, which speedily disappeared, and after undergoing treatment for four months left apparently well.

SAPROL: A NEW DISINFECTANT.—In the *Centralbl. f. Bakt.* for August, 1892, an account is given of the properties of this recent addition to disinfectants. In character it is oily, of a dark brown colour, and lies upon the surface of the fluids to which it is added, these extracting from it its disinfecting properties, which are phenol, creasol and other like products. Added to mixtures in the proportion of 1 per cent., it will effectively sterilise them, and according to Lasre, who has investigated the subject, it is likely to prove valuable in disinfecting the dejecta of large establishments, such as barracks.

A NEW BACILLUS IN THE MOUTH.—A new bacillus has recently been cultivated by Schmiegelow from the mucus in the mouth. The cultures made on gelatin appeared as whitish masses, the organism resembling not only in its growth but also microscopically, the bacillus anthracis. Inoculation experiments proved that it was fatal to mice after twenty-four hours, rabbits surviving for three days, while a hen and pigeon proved refractory to the virus.

CASSIA AS AN ANTISEPTIC.—In *La Semaine Medicale* Dr. Black states that he has found essence of Chinese cassia a most valuable and powerful antiseptic. It possesses an agreeable odour, is non-irritating, and is in his opinion superior to either boric or carbolic acid. A solution of 1 in 4,000 is effectual.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The Scholarship of sixty guineas, open to students of the Universities of Oxford and Cambridge, has been awarded to Mr. Walter S. Sheppard, of Christ's College, Cambridge. The Entrance Scholarship of 120 guineas has been awarded to Mr. Sidney Hubert Berry, and that of sixty guineas to Mr. Alfred Burn.

EXAMINATION IN DENTAL SURGERY, ROYAL COLLEGE OF SURGEONS, ENGLAND.—The next examination for the diploma of Licentiate in Dental Surgery of the Royal College of Surgeons, England, will commence on Nov. 28th. Candidates must send in their schedules to F. G. Hallett, Esq., at least fourteen days beforehand.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.—The next meeting of the Odontological Society will take place on Monday, November 7th, when a paper upon "Some Mechanical Devices for the Retention of Artificial Dentures" will be read by Mr. Storer Bennett, F.R.C.S., L.D.S., while Mr. Newland Pedley, F.R.C.S., L.D.S., will bring forward a casual communication on "An Inverted Lower Canine erupting below the Chin."

ERRATUM.

WE are asked to state that the account of Dr. Wilson's demonstration at the annual meeting should read as follows:—"Mr. Wilson used in his demonstration a Clover's ether inhaler, a Hewitt's stop-cock and a Smithard's pedal lever gas apparatus, special comment being made by him on the advantages of the pedal lever gas bottle stand."

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our correspondents.

Our Professional Status.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—May I ask how long our profession is to be degraded and the pecuniary circumstances of many of our reputable practitioners embarrassed by charlatans, who will always be able to gull a large proportion of the public so long as they have the chance. Of course these men do not affect *some* of our brethren, but there are many who are suffering from their competition and misleading ad-

vertisements, and in the manufacturing and commercial districts no doubt all would agree that they are materially affected. Of course, as we all know, this appertains mainly to mechanical work, as persons often call on a good practitioner to have teeth extracted, and then after asking the fee for artificial teeth they tell us they will call again, but as they fail to do so, depend upon it they go straight away to the half-crown and guinea man.

It has been said that as a profession we are better protected than our medical brethren; this I think is incorrect, inasmuch as we require a qualified doctor when we come into the world, and he is needed again when we make our departure; then, again, the dental quack professes to do all and more than a respectable practitioner, and this he does simply by an evasion of our Act that the public do not see through, and even if they did, the advertised "cheapness" of his "skill" (?) is a great draw.

When the Dentists Act was passed, all then in practice were registered, and it was never intended that men who were not engaged in dentistry at that time should afterwards be allowed to engage in dentistry in any shape or form, and I for one think it is high time for counter advertisements, or, better still, a revised act of parliament, not only in the interests of the profession, but of the public, for as the Act remains it seems a farce, as it is being and ever will be—unless altered—evaded by both young men and old, recruited from all manner of trades, and while this loophole exists our profession will not attain that dignity in the eyes of the public which it deserves. Hoping this letter will cause others to give expression to their opinions,

I remain, yours truly,

"THOROUGH."

APPOINTMENTS.

A. R. COLYER, L.R.C.P., M.R.C.S., L.D.S., Dental Surgeon
Brixton Orphanage.

W. MAY, L.D.S.Eng., Dental Surgeon Army Guild Home,
Kilburn.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 11. NOVEMBER 15, 1892. VOL. XIII.

Bacteriology.

THE part taken by micro-organisms in the diseases of the human mouth is now everywhere acknowledged to be a most important one, and few will be disposed to deny the great value of a knowledge of the science of bacteriology to the dental student.

Researches published in our own country and abroad have definitely proved the intimate relations of dental caries to bacteria, and many diseases of the mouth, such as thrush, noma and the various forms of stomatitis, are now known to be caused by micro-organisms. They also play an important part in the diseases of the dental pulp, when inflammation proceeds to suppuration or gangrene, as well as in the various diseases of the peridental membrane, that most obstinate disease, pyorrhœa alveolaris, being largely dependent on the same causes.

In addition to these more ordinary diseases of the mouth are the more serious and happily much rarer cases of septi-

cæmia, pyæmia, &c., which have occurred as the result of wounds or neglected abscesses. According to the list of serious accidents, published last year by Professor Miller, such cases are not quite so rare as they have hitherto been considered.

Dr. G. Sanarelli has lately published details of experiments to show that the human saliva is unsuitable for the cultivation of pathogenic microbes, some being killed, others rendered inert by the saliva. The experiments described were performed with the sterilised saliva of healthy individuals out of the mouth, and although these results appear to be at variance with previous investigations, we must remember that the experiments were performed with saliva (to which nutrient material must have been added to constitute a culture medium) and under necessarily artificial conditions.

There seems reason to assume that in healthy conditions of the system the pathogenic bacteria do not flourish, and probably when they have obtained a temporary foothold in the mouth they may soon die or be taken up by cells and disposed of; but given the factor of depression of the system, or that general indefinable condition which weakens the resisting power of the organism, bacteria which would otherwise perish may proliferate, grow and exert a deleterious influence upon the individual. It is well established that the capsule coccus of Fränkel, found in pneumonia, is pretty constantly present in the mouth, but in ordinary conditions of the system it does not multiply freely, and there is no doubt that when drawn into the healthy lungs, as it frequently must be, it usually does no harm; but some slight local inflammation or congestion in those organs may give the necessary conditions for its growth, and disease results.

In connection with this arises the question of the

use of certain modern appliances in the way of artificial substitutes, which tend to favour the retention of secretions and food particles. We cannot but think that on strictly scientific grounds we are bound to condemn any fixed appliance which does not admit of thorough and efficient cleansing, and to say that where such conditions cannot be obtained, fixed appliances should be avoided, whether they be used for regulating purposes or as artificial substitutes.

We had hoped that the early views that leptothrix is a distinct organism, which, appearing in various forms, is alone responsible for dental caries, had been efficiently disposed of, but this view has found a new champion in Signor Vicentini, of Naples, who maintains that all, or nearly all the bacteria in the mouth are stages of this one organism, which is described as "having true reproductive organs, and an elaborate method of fructification."

The main direction in which the general science of bacteriology has advanced during the present year has been in the study of "immunity," or the power possessed by the animal body of resisting the action of the bacterial poison. The interesting discussion on this subject at the Pathological Society certainly appeared to be in favour, on the whole, of those who hold that the cells of the body, if not the sole, are the principal, agents in the production of immunity.

One of the most interesting researches of late years in the same direction has been embodied in the "*Leçons sur la Pathologie comparée de l'Inflammation*," by Mons. E. Metchnikoff, of the Pasteur Institute. Beginning with the lowest forms of animal life, the myxomycetæ or slime fungi, which, really occupy the uncertain boundary land between animals and plants, he has traced the action of the cells in taking up and digesting bacteria and other

substances through the various classes of the animal kingdom, and has shown most conclusively that the mesodermic cells of the body do possess this extraordinary power.

A very curious research connected with the action of the white corpuscles of the blood, as defenders of the organism, has been the subject of a paper published in the *Annales de l'Institut Pasteur* for July. Dr. Werigo, having injected a cultivation of a non-pathogenic bacillus (*prodigiosus*) into the vein of a rabbit's ear, examined a drop of blood immediately afterwards, and was surprised to find an almost total disappearance of the white corpuscles. On repeating the experiment he found the result was a constant one, not only with innocuous substances, like carmine, but with cultivations of pathogenic microbes. The leucocytes were enormously diminished in the blood in two minutes. He then proceeded to examine the organs of the animals, to account, if possible, for the disappearance of the cells, with the result that the vessels of the liver and spleen were found to be crowded with white corpuscles containing the bacilli. The corpuscles were arrested in the liver (a condition of stasis taking place in the vessels), and yielded up their ingested bacteria to the endothelial cells of the liver and the pulp cells of the spleen, which were seen in later stages to be crowded with bacilli. Further, the vessels beyond the point of accumulation, at first nearly empty of leucocytes, were seen to be again conveying the usual numbers of these cells which had parted with their burdens and were again free.

One very remarkable thing about this discovery—the details of which have been followed and confirmed by Prof. Metchnikoff—is the evidence that foreign substances are taken up almost immediately by the cells, carried off to the liver and spleen, and disposed of fifteen to twenty minutes after their arrival in the blood.

It requires no reasoning to convince our readers that the science of bacteriology holds a foremost place in medical science, and has a great future before it, and that more attention should be given to it by the dental student than has hitherto been possible. A general knowledge of the whole subject is a necessary preliminary to any particular research, and, fortunately, the means of acquiring such knowledge are now to be obtained. A practical course has been commenced at King's College, London, and the course given at the Hygienic Institute at Berlin is open to all nationalities.

We hope the time is not far distant when a bacteriological laboratory will form a feature in every dental school.

ASSOCIATION INTELLIGENCE.

Representative Board.

A MEETING of the Representative Board of the British Dental Association will be held at 40, Leicester Square, on Saturday, December 3rd, at 3.15 o'clock.

W. B. PATERSON, *Hon. Sec.*

Southern Counties Branch.

A MEETING of the above Branch was held at Folkestone on October 15th, and considering the difficulties of the cross country train service, was well attended by members and visitors.

Prior to the meeting most of those present enjoyed the hospitality of Mr. Martin Henry, of Folkestone, at luncheon at the Queen's Hotel, during which the President, Mr. Dennant, in proposing the health of Mr. Martin Henry, tendered him hearty thanks for his hospitality and for the trouble he had taken with the necessary local arrangements for the meeting.

After a Council Meeting, at which Mr. J. W. Seville, L.D.S.Eng. of Folkestone, was elected a member of the Branch, Mr. Dennant, President, took the chair. At the meeting those present included Messrs. Morgan Hughes, Lawrence Read, W. B. Bacon, T. J. Dumayne, F. J. Van der Pant, Stephen Hoole, J. H. Reinhardt, H.

Beadnell-Gill, A. Gabell, G. O. Richards, G. Henry, S. Lee Rymer, W. Saunders, C. R. Amooore, M. Henry, L. Maxwell, J. W. Seville: and as visitors G. H. Warner, A. T. Scott, G. C. Walton, and W. J. Turner.

The HON. SECRETARY read the minutes of the last ordinary meeting, which were duly confirmed.

The PRESIDENT then called upon Mr. F. J. Van der Pant for his paper on "The Dental Pulp: its Conservative and Radical Treatment."

Discussion having been invited, Mr. MORGAN HUGHES said that with regard to the question of saving or destroying exposed pulps he was, except in the case of traumatic exposures, strongly in favour of the practice of devitalizing at once. He thought that even fairly successful cases of capping exposed nerves, were usually attended by so much discomfort from changes of temperature, and a large percentage of ultimate failures, that in view of the almost certain success and comfort to the patient of the radical treatment the attempt to save alive a damaged pulp was not worth making. He believed in thorough mechanical cleansing of the canals by means of the Gates Gliddon drills; in dryness of the canals and a non-irritant filling for the roots. He preferred using saturated alcoholic solution of Beta naphthol and warm air prior to filling the roots as far as possible with the gutta percha points and "chloro-percha." He thought oxychloride of zinc frequently gave rise to very severe pain, and was, therefore, objectionable as a root filling.

Mr. REINHARDT did not believe in trying to save exposed nerves except where the exposure was accidental. He disapproved of the use of carbolic acid in such attempts, and thought a non-escharotic was to be preferred for this purpose. In cases where arsenic had been used to destroy the pulp he failed to see the necessity of any further antiseptic treatment. He would very much like the author of the paper or anybody else to tell him how to treat exposed pulps in children's teeth. He thought oxychloride of zinc was valuable as a root filling material on account of its antiseptic qualities.

Mr. BEADNEILL GILL asked Mr. Van der Pant how he managed to remove pulps with a spoon excavator, as he had never yet met with an instrument of that class fitted for the purpose? He disagreed with Mr. Hughes in his mixture of eugenol with arsenic, as he considered dryness in the arsenical preparation a *sine qua non* for the prevention of pain. This consideration made him prefer using White's devitalizing fibre, and with its use there was less chance of leakage on to the gum. He advocated immediate root filling, except when there was much hæmorrhage from the pulp, when he would apply a styptic dressing. He thought men did not recognise sufficiently as practical exposures of the pulp, cases in which it was only covered by porous and softened dentine. His advice in these cases was to devitalize at once.

With regard to Mr. Reinhardt's question as to children's teeth, he had had great success during the last five years in cases of which he had kept a careful record by means of the following treatment: Apply a small quantity of nerve devitalizing fibre, and in twenty-four hours remove as much as possible of the pulp without going through the open foramen. Check the hæmorrhage and fill the pulp chamber, and as much of the canals as possible with a wool dressing soaked in carbolised resin. Then fill on top of that. He had sometimes had abscesses pointing on the gum even within twenty-four hours, which he attributed to the action of the arsenic; but even in these cases he would not extract, as matters quieted down and yielded to lancing the gum and other treatment. He was a great believer in carbolised resin, but thought the resin was more valuable than the small percentage of carbolic.

Mr. G. HENRY could not agree with the last speaker about the quantity of carbolic in the carbolised resin, as it was quite sufficient to blanch the gum, and the taste was very strong. He had in former times been a great advocate for capping pulps, and must say he had had very considerable success. He thought the eschar produced by carbolic acid was a distinct advantage if the cavity was afterwards stopped, and the air thereby excluded. He thought experience proved that it was, at any rate, not injurious. In reply to a question, Mr. Henry stated that he had now almost entirely abandoned the conservative treatment, and now usually devitalized. He called attention to what was evidently a clerical error in the Paper, in which the size of the cells in the pulp was quoted as running up to one-eighth of an inch in diameter.

Mr. LAWRENCE READ said he thought arsenic and cocaine equal parts with sufficient lanoline to moisten, about the best application to use in destroying the pulp. He laid great stress upon the importance of always capping the arsenical preparation used, to prevent pain from the pressure of the dressing. He considered by far the best method of destroying the pulp was its immediate removal under N_2O gas: and, in reply to a question, said that there would be usually time under the anæsthetic to remove the pulps of two front teeth or one molar. He thought that we were now recognising the fact that we could fill roots immediately with 95 per cent. of success. He would thoroughly deodorize the canals with peroxide of hydrogen, dry, and fill with perfect safety at one sitting. He did not quite understand what Mr. Gill meant by children's teeth, but he had found that trying to fill the roots of the six-year old molars at about the age of eight years was a perfectly futile proceeding. He had tried everything, and found it was a failure. (Mr. Gill explained that he treated children's permanent teeth with undeveloped roots as he did their temporary teeth—with the carbolic resin treatment.) Mr. Read said in cases where he did not wish to extract the teeth, he simply capped over a

wool dressing and filled with gutta-percha. With regard to the use of barbed instruments, he thought there was a knack in introducing them in their proper relation to the walls of the canal, so that the barb should not catch against the side and break off.

Mr. G. O. RICHARDS agreed that the immediate extirpation method under gas was the best where possible. With regard to the conservative treatment of the pulp, he thought the author of the Paper had not overrated the importance of considering the constitution and state of health of the patient. He thought that the action of carbolic acid in forming an eschar under the stopping was analogous to that produced in burns, where the eschar was immediately protected from exposure to the air. He felt that mischief often arose from leaving arsenic dressings in too long. In order to lessen the pain from their application, he recommended free exposure of the pulp, and the mixture of an equal quantity of antipyrin with the arsenic, as the physiological action of the former drug in diminishing blood pressure relieved the congestion of the vessels caused by the arsenic, and, therefore, diminished pain.

Mr. GABELL suggested that we should have papers read on this class of subject at every meeting, as it was one of every-day importance to dentists, and one that everybody could discuss.

The PRESIDENT said the subject was certainly wide enough to bear discussing in its separate sections, though no doubt a better discussion was obtained by allowing it to range over such a wide area.

Mr. MARTIN HENRY, whose promised communication bore upon the subject under discussion, related the details of a case in which the patient had suffered immense pain in a root. Upon examination, he discovered to his surprise that the nerve was exposed and inflamed. The dentine round it was extremely sensitive, and it was with difficulty he was able to seal an arsenic preparation in the root with wax. At the patient's next visit the root was completely comfortable, and the nerve was removed without any further trouble. Mr. Henry preferred to grind the metallic arsenic to powder in a mortar, and apply a very small quantity with creasote when required.

Mr. STEPHEN HOOLE related a case in which the application of an arsenic dressing to a lower molar had, through leakage, resulted after five days in complete loss of sensation in that side of the tongue, the patient eventually recovering sensation. He also mentioned that he had the pulp of his own upper wisdom tooth deadened with arsenic, and on the extraction of the tooth after a period of five years, found that the pulp was completely calcified.

The PRESIDENT had found that the immediate extirpation of the pulp under N_2O gas was a most useful method in certain cases. He had had considerable success in cases of accidental or recent exposures by the application to the pulp of a mixture of the beta

naphthol and osteo powder capping and filling. As time was pressing, he would now call upon Mr. Van der Pant to reply.

Mr. VAN DER PANT thanked members for their attention to his paper, and was pleased it should have elicited such a good discussion. With regard to Mr. Hughes' strictures about the division of his subject, and the antiquity of his authorities, he would call his attention to the title of the paper, and thought it was sometimes useful to go back to first principles in these matters.

The HON. SEC. then read a communication from Mr. James Rymer (Brighton)—"A Case of Amputation of the Apex of a Root" (which appears in the present number as an Original Communication).

Mr. BEADNELL GILL thought that the method described was a very long way off getting the desired result. In similar cases he should extract and scrape away the diseased part and replant.

Mr. HUGHES mentioned that he had, a few weeks ago, been obliged to resort to replantation to cure an obstinate abscess. In this case he had been clumsy enough to perforate the side of the tooth in question—a lower canine. Treatment without extraction proving unavailing, he extracted, filled the hole in the side with gold, rounded the sharp cusp, and replanted. The tooth was all right up to the present, but he should be glad to know the experience of members as to the average period of retention of replanted teeth.

Mr. BACON said he should prefer replantation to excision of the apex of the root. He had on one occasion, where he had removed an epulis round the two front teeth, replanted the teeth after cutting away the epulis and scraping the alveolus, the teeth remaining healthy for years.

Mr. G. O. RICHARDS wished to know the kind of drill used in the operation; also how the fragment was removed?

Mr. MAXWELL suggested that a small trephine would be a suitable instrument.

Mr. REINHARDT said he had seen the operation performed four times, and in each case the operator simply burred away the apex with a large bur and removed the debris by syringing.

The PRESIDENT thought the meeting was much indebted to Mr. Rymer for sending them the notes of the operation.

Mr. G. HENRY showed models of a case of irregularity, in which the left lower canine pointed towards the tongue, and where he thought there was a possibility of bringing the tooth into position, as there was plenty of space for it, and the apex of the root was apparently in the right situation.

Mr. LAWRENCE READ thought that time, assisted by the tongue, might cure the irregularity.

The PRESIDENT moved a hearty vote of thanks to Mr. Van der Pant, Mr. James Rymer, and the other gentlemen who had helped to interest the meeting. The hon. sec., Mr. Morgan Hughes, would at

all times be glad to hear from members who would assist on future occasions. The next meeting would probably be held at Windsor, on Saturday, January 21st.

The members afterwards dined together, and £4 was collected for the Benevolent Fund.

Metropolitan Branch.

A MEETING of the above branch was held on the 24th ult., at 8 p.m., at 40, Leicester Square, the PRESIDENT (J. Howard Mummery, Esq.) occupying the chair. There was a good attendance of members. The minutes of the last meeting were read and confirmed.

The TREASURER (Mr. Boyd Wallis) stated that the position of the Branch was so far satisfactory, as they had a balance in hand of £15 13s. He regretted to say that ten members were in arrears for two years' subscriptions, and thirty-three for one year.

The PRESIDENT then called upon Mr. Fripp to speak upon the next subject upon the agenda :—"Bridge Work, its Use and Abuse."

Mr. J. TRUDE FRIPP, at the outset, claimed the indulgence of the members for any shortcomings, on the score that he did not expect to be called upon, and was quite unprepared to open the discussion, though he should have been pleased to follow other speakers. From his experience during the last two or three years, he had come to the conclusion that bridge work as practised to-day does afford the means for supplying deficiencies which the profession never had before, and which would develop most certainly into one of the greatest acquisitions. It needed a good deal of discrimination and care ; so many things had to be considered—the patient's own views, the health and symmetry of the mouth, and innumerable points which would present themselves in dealing with the mouth. It seemed to him in cases where, for instance, the first and second molars had gone, and the third molar and second bicuspid were *in situ*, and these latter perhaps being healthy, or even if carious amenable to treatment—then in a case of that description the teeth might be bridged with perfect success. He had done a number of cases of that description, and had not known a single failure—certainly none had come back to him ; if there had been failures he had not heard of them. It ought not to be requisite even to mention the necessity for care and discrimination ; he should imagine that no member would dream of doing anything that would take the name of permanent work on an unsound foundation. He was now speaking of fixed bridge work ; movable bridge work was quite a speciality of itself. Everything should be in perfect order. An abscessed tooth might be crowned but it should be seen that the abscess was quite cured. He felt it impossible, called upon at a moment's notice, to give anything like

an adequate description of the work. Perhaps the better way would be to get the points of difficulty and objection stated, and answer them as they arose.

Mr. H. BEADNELL GILL asked Mr. Fripp if he considered it justifiable in any circumstances to cut into a perfectly sound tooth by way of getting anchorage for a bridge. It seemed to him (Mr. Gill) that, notwithstanding Mr. Webb's boast that he had never yet seen a tooth that he could not make stronger with a gold filling, cutting into sound teeth must be deprecated. He knew cases where dentists in London had cut into perfectly sound teeth in order to provide an anchorage for one terminal end of the bridge. He wanted to know if Mr. Fripp would support such an action as this.

Mr. L. MAITLAND said there were evidently *pros* and *cons* to this question, since the method was practised and advocated by dentists whose repute could not be called in question. His experience of bridge work had been entirely in one direction, and that was in taking them out of the mouth—an operation which was little short of hard labour. If anything else went wrong it was not difficult to put it right, but it was decidedly difficult to remove bridge work. He might mention, as an illustration, that he was occupied the whole of a day in getting a bridge out; holes had been drilled through the teeth, bridge and all, and metal pins had been put in and riveted.

Mr. LAWRENCE READ was very much obliged to Mr. Maitland for his experience, as it would fall to his lot the following morning to remove a piece of bridge work. There were two pins, one in each central. The gentleman had been riding, and had broken the lateral and the left central. He particularly wanted it repaired, and Mr. Read did not see the slightest chance of doing so without getting it out. He thought that, by cutting it into sections, so that he could rotate each pin, he might be able to do so. He thought bridges were permissible in certain cases and in the front of the mouth looked very well. He did not see that, because in certain cases it was difficult to prepare, one should do away with the idea altogether. There was no chance of rotation where one had two pins. In cases where one root was better than the other, the strong one supported the weak. As he came with a view to learn he should be glad if some member would give his experience in removing bridge-work from the front of the mouth.

Mr. W. T. TROLLOPE would like to ask the experience of members as to its durability. He had had patients come to him with bridges that had gone wrong; patients generally had the impression that when once fixed in the mouth it was going to last a life-time. It seemed to him that it could not be very durable. If one had two teeth attached to two others, each tooth had a double amount of pressure; it could only be a temporary arrangement, and not probably so lasting as a plate.

Mr. CORNELIUS ROBBINS remembered, some seven years ago, seeing one of the most famous bridge workers, viz., Dr. Mellotte, do some work in the surgery of Dr. Atkinson, of the United States, but he (Mr. Robbins) could not but think that there was some misplaced judgment. The entire arrangement was fixed at three points—the left canine, and the molar on each side; now he thought that in such a case one was expecting too much. With the exercise of great care, and well-selected cases, he thought conscientious work might be done. There was the difficulty of repairing, and also the difficulty of cleansing this work. Of course good bridge workers bevelled their gold off so that it was possible to pass silk under; he found, however, that in the molar region the necessity of bevelling robs one of half the masticating power. In small cases—cases where one had some good, sound standards to work upon—he should feel quite justified in adopting the method.

Mr. J. H. REINHARDT said that he was an opponent to bridge work in every way, in every shape and form. He was brought up to consider himself a perfect fool if he put in a whole plug of amalgam in two cavities. He did not see the advantage of bridge work at all; he did not see how one could get it to be a permanent piece of work, and he did not consider it justifiable to sacrifice two sound teeth to preserve two others; they might look very well for a couple of years, but was it worth it?

Mr. G. CUNNINGHAM was sorry to hear a friend take up so strong an attitude of opposition to the method, though he confessed that he himself had once taken the same attitude, but now he knew better, and he said *knew* advisedly. He understood that they were confining the discussion to fixed bridge work; there was no doubt that they were discussing an operation about which they had not heard the last, and that was because bridge work had developed in a country where mechanical work is not so good as it is in this. His authority for the statement as to the relative position in dental mechanism of the profession on this, and the other side of the Atlantic, was the Dr. Mellotte, to whom reference had been made by a previous speaker. They must distinguish between bridge work by means of crowns, and bridge work where an anchorage was obtained by drilling into the roots of sound teeth. Where did bridge work begin? First of all they had the extension crown, which was something between the simple crown and fixed bridge work. No doubt much could be done to restore function and mastication by the use of the extension crown; this could be done without destroying the pulp of another tooth for the sake of anchorage. Mr. Cunningham then explained, by means of diagrams on a blackboard, how he had treated a case in which one tooth was extremely loose, owing to tilting of its antagonist in the lower jaw. Having scaled the tooth and put it into as perfect a condition as possible, he was able to adapt an appliance

consisting of two gold molar thimble crowns joined, carrying a cantilever extension bar with two porcelain facings, and resting on the canine, which he claimed would give the loose tooth a longer and more useful life than it would be likely to have if left in its rocky condition. To antagonise with this upper appliance, an open thimble crown on the second bicuspid, carrying a masticating bar of metal only to bridge the vacant molar space, and anchored in a crown cavity of a much tilted pulpless third molar, had been arranged in the lower jaw as a cleanly, strong and efficient masticating appliance. It must be remembered that the true object of the dentist was neither to destroy teeth nor to preserve teeth, but to restore function. One member had referred to the difficulty of cleansing, but he (Mr. Cunningham) found that bridge work might be carried out, leaving the teeth free from the gum, and able to be kept as clean as possible. Parallelism throughout should be obtained, so that the bridge work may be promptly put in position; it fits closely, and may be fixed with the new copper phosphate cement.

Mr. VINCENT COTTERILL said that Mr. Cunningham had only alluded to one special case; he was afraid they would have to go a life-time before they would come across a parallel case. He should like to know whether it was perfectly justifiable to cut two holes in perfectly sound teeth to anchor a bridge in, because there were no teeth—not even those perfectly sound—that did not move slightly in masticating, and in that case the teeth would move and the anchorage become loose.

Mr. RUSHTON thought Mr. Cunningham's communication would have been more interesting if it had related to work that had had some year or eighteen months' wear, instead of only having been quite recently done. Mr. Rushton had lately seen two cases of bridge work, one a set of six front teeth in use about three years; they were a little prised forward, but he could not say how much longer they would last; they were quite free of the lower bite, and he thought that this was their recommendation. He had seen a case of lower bridge work on the right side, extending from the first bicuspid, holding three teeth, which had been worn six months with great discomfort and had gradually become looser.

Mr. CUNNINGHAM did not think that the case he instanced should prejudice his argument; he mentioned it because the points were all fresh in his mind, but he had had the opportunity of seeing and inspecting the work of other practitioners, and was quite convinced that the English practitioner's naturally somewhat extreme conservatism was misplaced; he had more confidence in the method than had his friend Mr. Rushton.

Mr. LAWRENCE READ wished to ask Mr. Cunningham whether he capped both the molars? He should like to know how he crowned the wisdom tooth; he had never been able to crown a tooth in a

loose condition without making it so much worse as to **endanger** losing it.

Mr. CUNNINGHAM did not intend to give any exaggerated notion of the looseness of the tooth ; it was not so marked as to notice it at all in the first instance. One of the greatest difficulties he had was not in cutting the second molar, but to confine the cutting to the wisdom tooth. He cut very slowly, and got a space between before he put in the discs at all.

Mr. LAWRENCE READ was much obliged to Mr. Cunningham for his explanation, but he was not now able to understand how he cut the tooth. Did he use sand-paper discs ?

Mr. CUNNINGHAM said he used the finest sand-paper discs he could get, but he used in the first place an ordinary piece of steel tape, and the marking—the roughness—of the steel tape was quite sufficient to cut the tooth ; owing to the looseness of the tooth there was then just enough room to allow the sand-paper discs to run on the second molar.

Mr. LOUIS MAITLAND remembered having read a very interesting communication of Mr. Cunningham's on replantation. He would like to ask him if he would not have found it much easier to extract the tooth, cut it down, and replant it ?

Mr. CUNNINGHAM thought it would have been a great deal easier, but the patient would not consent to that. There was no doubt that he had cut far beyond the enamel, but the patient had to suffer, and he had gone through it. Curiously enough, the greatest pain was discing down the wisdom tooth.

Mr. H. B. GILL appealed to the Chair to know if they were not wandering away from the point.

The PRESIDENT thought that they had gone a little away from the subject, as they were really discussing the use and abuse of bridge work.

Mr. RUSHTON remarked that he thought the question of pain was intimately connected with it.

Mr. H. B. GILL said that it was very easy for some men to find mechanical difficulties ; for himself, provided he could get the mouth anything like decently open, he could generally cut a tooth, but the question was—is the work justifiable, is the pain given to the patient at all compensated for ? He himself thought that to cut into a living tooth simply because it was an idea that bridge work ought to be done, or was the fashion, was to his mind a disgrace to the profession.

Mr. LOUIS MAITLAND said they were invited to ventilate the abuses of bridge work. He recollected a visit of an American doctor, when he demonstrated all porcelain bridge work to the profession. The climax was reached when at the close of his demonstration he turned round and said, "And you can charge ten or fifteen guineas per tooth for it."

Mr. W. FISK said that his personal experience had not been very much, but his partner had been putting it in cases where the second

bicuspid and first and second molars were out ; they had crowned the first bicuspid and wisdom tooth, and had fixed bridges in for some time, and in carefully selected cases, where the standards had been sound, they had been a great success. He thought all dentists to be successful in their profession must be well abreast with the times, and well equipped for work.

Mr. R. DENISON PEDLEY thought there was one view which must not be lost sight of ; all those who had not and did not go in for bridge work were, perhaps, prejudiced simply because this class of work had fallen into the hands of the advertising quack. The only cases that had come under his notice had been cases of this class. Where, however, one knew that cases had been carried out by good men, and the patients had been carefully treated, he thought the method should not be condemned, but was worthy of careful consideration.

Mr. J. TRUDE FRIPP, in reply, felt himself placed in a peculiar position, because he had never entered the lists as a champion of bridge work, but he had, nevertheless, to receive all the strictures that had been cast upon it. He would say, in the first place, very emphatically, that the greatest amount of condemnation had come from those who knew least about the method ; he himself felt the same objection to it when he knew nothing about it, but when he got to know more about it, its practicability and usefulness in well-selected cases removed his prejudices ; he now used the method in his work where suitable, and believed that it would be useful, and permanently useful. At the close of the meeting he should be happy to show to any members interested, a piece of bridge work which he had been using in his own mouth for two or three years. There were some imperfections in it, but notwithstanding all these imperfections, he had derived so much comfort from it that he would go through all the trouble once a year to avoid recourse to a plate. The imperfections were simply due to want of experience and faulty manipulation. The two teeth that had been utilised for the bridges were living teeth. Mr. Gill seemed to think that cutting into the enamel was *per se* a bad thing, and for no advantage that could occur was justifiable. He (Mr. Fripp) said most emphatically that it was justifiable if the advantage gained was greater than the disadvantage. Supposing the second lower molar were carious and broken down, and the first molar gone, you might then have to anchor to the first or second bicuspid, to treat this second molar, crown it over and crown the first or second bicuspid. Whenever a tooth did not show he would use all gold, so as to avoid wherever possible the risk of the fracture of a porcelain tooth. He strongly condemned the use of emotional or picturesque language on a subject which should be discussed in the dry light of reason. A gentleman came to him for the trimming of a first bicuspid root on the left side ; the root was large and strong ; he had lost the second bicuspid and first molar. Mr. Fripp informed his patient that it was

not necessary to trim the tooth down or remove the root ; the root might be treated, and, by means of a crown and bridge, the places of the absent bicuspid and molar might be filled. The patient consented, and was greatly pleased with the work. During the eighteen months that it had been done he had never had occasion to make complaint of any kind. The cases where this work was most useful was where a gap occurred on one side of the mouth only. It was most awkward to have to put in a partial denture where, say, only two bicuspid and first molar were gone, while the rest of the jaw was in good condition ; it was *then*, as it seemed to him, that bridge work was most useful. Where it could be avoided he should certainly object to cutting into a sound tooth for the purpose of fixing a pin and obtaining anchorage, but in certain cases, in his opinion, it was justifiable. If by cutting into and thus in theory damaging one tooth they obtained increased usefulness for two or three others, surely the course was then allowable.

Mr. H. B. GILL wished to be allowed to say one word. He did not intend to allude to cutting the enamel away and capping it. What he objected to was cutting deep down into the dentine, and then inserting a certain amount of soft amalgam to provide an anchorage.

Mr. SIDNEY SPOKES introduced the subject of "Covering." He said that at that late hour he would be as brief as possible. He was in hopes that Mr. Paterson, the honorary secretary of the Association, would have been present to give them some information. Of course the whole of this question bore upon the large question of unqualified practitioners, but in regard to "covering" they might at once put on one side those who were carrying on practice unregistered, and describing themselves as manufacturers of teeth and so forth ; those they had nothing to do with now. On the other hand, those who practised as dentists might be subdivided or classified into two divisions. In the first were the unregistered men who engaged qualified assistance, and in the second qualified men who covered unregistered assistants. It was probable that the curse of covering was felt much more in provincial towns than in London, and therefore a door was left open for them to join hands with their professional brethren and show that they were not wanting in sympathy and in willingness to help in this matter as far as possible. Now that the Medical Council was showing an inclination to apply the rule as to covering, he thought that they should all support the hands of the secretary (Mr. Paterson) by giving him all the information they could of particular cases that came within their individual observation. It was, of course, difficult to nail these cases to the counter, but in a body of men like the Metropolitan Branch it must occur that they should hear in some authoritative way from the mouths of patients to what extent this system was being carried on. One suggestion would be to establish an official bureau to which information in strict confidence might be sent, and there pigeon-holed and docketed to be ready for use at a critical moment.

That he simply threw out as one suggestion. He remembered at the time when the General Medical Council first suggested that there should be such a list provided for them, it became a matter of great difficulty as to where these statistics were to be got from.

Mr. VINCENT COTTERILL certainly agreed with Mr. Spokes that it would be a very good thing if the names and addresses of those men who were covered could be sent in to some centre where the information would be treated in confidence, and instanced a case in the provinces where a man in the town, unqualified and unregistered, was practising in the name of another ; it became known that he was not qualified, and a meeting of medical men was held to decide what course should be pursued, and they came to the conclusion that none of them would give gas for this man.

Mr. H. B. GILL thought that there could be very little doubt but that a great deal of good would result by some arrangement where information could be sent in strict confidence, and where the Council, from information received, might start enquiries quite independent of the local practitioners. Hitherto the difficulty had been that no respectable practitioner cared to make a cheap advertisement of himself by taking the initiative. There was a case in his own neighbourhood of a man practising under another man's name, but he (Mr. Gill) decidedly objected to move in the matter, whereas if he could send information to a proper bureau, where materials could be worked up by officials and independent enquiries set on foot, he should do so.

Mr. SPOKES hoped that the Association would be able to take action against some London men to begin with ; he thought that then throughout the provinces there would be a shiver which might result in a good healthy "rigor."

The PRESIDENT thought the suggestion a very valuable one. The greatest difficulty had been that the information was not full enough ; they had a lot of vague reports upon which the authorities were not able to act. He thought that if a confidential bureau was established that it would result in their getting much better and fuller reports. As it was time to draw the meeting to a close, after thanking Mr. Fripp for so kindly undertaking to conduct the discussion of the evening without previous notice, he announced that the Annual General Meeting would be held in January.

Midland Counties Branch.

THE autumnal meeting of the Midland Counties Branch of the Association was held on Saturday, October 29th, at Sheffield, when papers were read by Mr. J. S. Storey upon "The Past, Present and Future Training for Prosthetic Dental Work," and by Mr. F. Harrison upon "Dentistry in Sheffield." A full account of the meeting will appear in our next issue.

ORIGINAL COMMUNICATIONS.

Notes on Recent Investigations upon the Nerves of the Pulp.

By C. S. TOMES, M.A., F.R.S.

IN the *Deutsche Monatschrift für Zahnheilkunde*, October, 1892, there is a paper by Dr. Morgenstern which gives a preliminary notice of his investigation into the nerves of dentine. The matter is one of such interest to our readers that it seems desirable to submit to them at the earliest possible date a notice of any such investigations, although, as I shall presently be obliged to again point out, these preliminary notices are open to very serious objections from a scientific point of view, and this one not less than the generality of similar communications. Dr. Morgenstern tells us that dentine is supplied with nerves, not at all points, but at many and well-defined places. The nerves run out of the pulp, especially at its cornuas bundle of axis cylinders with scanty medullary substance, and course through the dentine in canals which are in places more minute and in places larger than the ordinary dentinal tubes, from which they can be distinguished by ordinary methods of research. Each canal contains at least two axis cylinders, which, when they reach the neighbourhood of the dentine boundary, terminate: (1) in the dentine under the margin; (2) in the boundary between the dentine and enamel or cementum; (3) or pass into the enamel.

In the dentine and in the stratum intermedium the axis cylinders end in knob-shaped structures, which are ellipsoid or pear-shaped. In the enamel they end in various ways. They penetrate it for a very short distance, and then end, as in dentine. They end in long-drawn-out nucleated structures with (a) they traverse the whole nerve end corpuscles to their points; (b) they end in the nucleus of the corpuscle; (c) they traverse a large part of the corpuscle, wind round one or more nuclei, and end in the last nucleus. These nerve end bodies are most marked in bicuspid, less so in molars; in the former they mostly lie in the points of the dentine, in the latter they are to the side of the cornua of the dentine.

If these results prove to be correct, they are of the greatest interest and importance, but the data for estimating their accuracy are not to hand. For although the writer establishes a claim to

priority by a preliminary notice of this kind, not only are no figures given, but the methods of research are absolutely withheld; we are told that the methods of preparation, the development, and the more exact histology will shortly be given on the occasion of demonstrations which the writer purposes to give in several towns.

This is not a usual method of making public the results of a histological research, and hardly commends itself; moreover, at the commencement of the note we are told that the writer had demonstrated nerves in the boundary between the dentine and the enamel some ten years ago, and that the correctness of this discovery was confirmed by "two professors of histology." One wonders why their names are not given if their reputations are such as to lend weight to their dicta; then it is a thousand pities that their names are not published. If they do not carry this sort of weight, then it matters little that they were professors of histology.

Whilst our judgment must remain altogether in suspense pending the publication of figures, of methods of research, &c., &c., it may be worth while to note several difficulties which occur in the acceptance of the views propounded, though these may not be of much weight as against positive observation.

In the first place it seems unlikely that if there are in the dentine special canals, some smaller and some larger than the deninal canals, that these should not have been noticed, the dental tubes being remarkable for their uniformity of diameter, then too these end corpuscles must have occupied spaces which would be conspicuous in dry dentine sections. To this difficulty I shall again recur, but I may mention that since reading Dr. Morgenstern's paper and seeing Dr. Dentz's specimens, I have looked over without success a great number of sections in the hope of finding indications of such spaces.

Mr. Mummery has for the last two or three years been working out this subject, and his specimens have been many times shown to myself and to others, though his research, not being final and conclusive, he has not so far published his results.

But by following up Boll's method of preparation, by Weil's process, and also by decalcification processes, he has convinced himself and others that a great number of fibres do pass from the pulp to the dentine, these fibres being much smaller than the dentine fibres properly so called. The accuracy of Boll's results are, therefore, so far confirmed. He has not, however fully succeeded in seeing what becomes of them when they reach the dentine.

By means of various stains, especially by means of iron, followed by tannin, he has shown them stained, and they appear to be traceable backwards into nerve trunks a little way below the surface; these nerve trunks themselves consisting of sheaves of non-medullated nerve fibres—axis cylinders, in fact.

Mr. Mummery entertains no doubt that the dentine is permeated not only by the dentinal fibres, but also by much finer fibres; some of these run up towards it from fusiform cells, which lie near the surface of the pulp, and others appear to come from points deeper down in the pulp, and to be without fusiform enlargement.

Dr. Dentz, of Utrecht, has sent to me a preparation from the jaw of a month-old child, in which the cap of dentine of a molar is about $\frac{1}{80}$ inch thick. This contains, at intervals, near to the enamel surface, large spaces of more or less pyriform shape, and in some of these pyriform bodies, with their large extremity outwards, and calling to mind nerve-end corpuscles, exist. They do not completely fill the space which they occupy, being themselves about $\frac{1}{160}$ inch long, and the space being about twice that length. They contain six or eight nucleated cells closely packed together, and at their finer extremity are apparently continuous with the contents of dentinal tubes. Dr. Dentz has not succeeded in tracing these into continuity with nerves, so that all that can be said about them is that they by their appearance recall nerve-end bodies. They are not to be found at all in many specimens, and the same difficulty occurs to me as that which arises in considering Dr. Morgenstein's research, viz., how is it that the spaces which they occupy are not conspicuously visible in dry sections, for they are very large— $\frac{1}{80}$ of an inch long—and ought, therefore, to be far more conspicuous than the interglobular space towards its periphery of the dentine.

It seems as if now at last he was about to attain to some certainty as to the termination of the nerves of the pulp; at all events, there is much that is highly suggestive and encouraging to workers in this field of research.

FUCHSINE makes an excellent stain for hard sections of teeth, bringing out the canaliculi of the cementum and the ramification of the dentinal fibrils very clearly. The strength should be at 15 to 20 per cent. dissolved in spt. vini rect. The section remaining in the stain about one hour.

Some Practical Details of Operative Dental Surgery and Mechanics.*

By G. BRUNTON, Leeds.

MR. PRESIDENT AND GENTLEMEN,—The man who is best equipped with tools and material—and one might also add brains—is the man who will do the best work in the shortest time, and if a man has a modicum of brains, good tools and materials, you will expect him to do reasonably good work. To further that end I have brought forward a few things which I have gathered up from my surgery and workroom.

The first subject I want to bring to your notice is the extended or Howard position in cases of extracting a number of teeth



FIG. 1.

where the patient is under an anæsthetic. When a number of teeth are to be extracted, and the patient is placed in the ordinary position on a couch, the tongue has a tendency to fall back, and the epiglottis to close. It is, I think, the very worst position, or rather the very best position, for an accident to happen. On the other hand, in the Howard position, represented in the accompanying diagram, the patient is laid upon a couch, the head being tilted over the end of it after the administration of the anæsthetic. Instead of a couch an ordinary bed can be used. The head is

* Read at the Meeting of the British Dental Association at Manchester, 1892.

down, the epiglottis is always open, and the blood does not get into the throat, it is practically impossible for anything to get into the throat. If any blood overflows from the basin formed by the palate, it goes out through the nose. There is a free passage for the air, the muscles of the throat, when the head is in this position, constrict the blood vessels, and the hæmorrhage is not so great as when the patient is in the old position. Altogether, the position is a safe one, and although there may be some difficulty at first in operating, a little practice gets one over it.

When I first thought of the extended position I discussed it with a medical friend, and came to the conclusion then that I should have to invent a new set of forceps to operate with the patient's head upside-down. My attention was then drawn to a communication by Dr. Howard, which was published in the *British Medical Journal*; and in my next case I simply put the patient's head in the new position after anæsthesia, and began to operate. I found it difficult, but I completed the operation, and in the next case I found it easier, and after the first few cases I found no difficulty at all. I always put the patient in this position when a number of teeth have to be taken out and the patient is under an anæsthetic, excepting, of course, nitrous oxide gas. I take out all the upper teeth with one pair of forceps. The lower teeth I take out on the patient's right side with the left hand, and on the left side with the right hand, using Hawksbill forceps. Three pairs of forceps generally suffice. I find a quick-action forcing gag useful for opening the mouth after the anæsthetic is administered. Sponges should be at hand for mopping the blood out. The palate forms a nice pool for it to gather in, and I remove it as it gathers.

The next thing I have to explain is a sponge grafting for roots the ends of which are absorbed, are incomplete, or those where perforations exist through the sides of the roots. Before using the sponge graft I had considerable difficulty in treating these root canals, because when the end of the root is absorbed the root filling is apt to be pushed through what ought to be the apex, and becoming an irritant, may cause loss of the root altogether. The method which I have adopted has already been published in the Journal. Supposing the end of a root is absorbed or incomplete, I thoroughly sterilise the cavity, and the canal having been sterilised as well as possible, a small piece of sponge is selected and put into and through the canal. The sponge

will make no graft *in* the root canal, it must go quite through and out at the absorbed apex. The root canal can then be filled in the ordinary way. The sponge is sterilised in bichloride of mercury, 1 in 500.

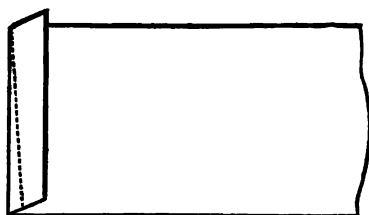


FIG. 2.

These are points for drying root canals. They are made from Whatman's water colour paper of different thicknesses, which is treated with a solution of bichloride of mercury to sterilize it. The paper is cut into strips an inch wide, and after having been

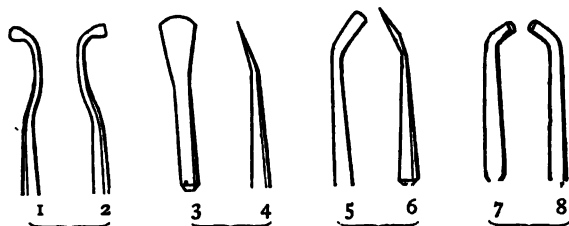


FIG. 3.

Nos. 1 and 2 are for cavities behind upper incisors and canines, two sizes, right and left.

Nos. 3 and 4 very thin, for trimming weak enamel margins, two sizes, side and front view.

Nos. 5 and 6 oblique, very thin edged, for fissures in lower molars, side and front view, two sizes.

Nos. 7 and 8, tube chisels for crown cavities in upper molars.

boiled in a solution of bichloride of mercury, 1 in 500, for five minutes, it is dried. The paper is simply folded and cut with the scissors, along dotted line (see fig. 2), and you thereby produce a point which has a groove in it, and when it is thrust into a root,

instead of driving the matter through the apex it runs into the groove. Besides, the paper being absorbent takes up all moisture. These points can be kept in a box ready for use at a moment's notice.

This is a small water jacketed oven made of thin copper, in which I keep pellets of Japanese paper for drying cavities. They are kept away from anything contaminating, and being warm they are more absorbent and always ready for use. A spirit lamp warms the oven. It also warms the little shelf which I use for gutta-percha stoppings. I have made some enamel chisels of new forms.

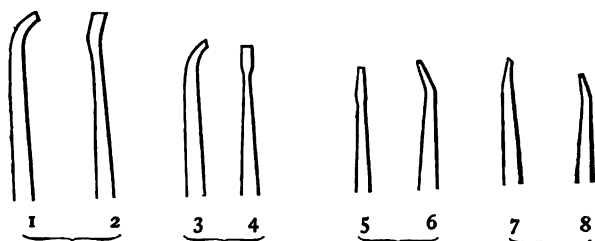


FIG. 4.

Nos. 1 and 2, for distal cavities in molars, side and front view, two sizes.

Nos. 3 and 4, for mesial cavities in molars, side and front view, two sizes.

Nos. 5 and 6, for distal cavities in bicuspid and canines, side and front view, two sizes.

Nos. 7 and 8, for mesial cavities in bicuspid and canines, side and front view, two sizes.*

Here is a right angle handpiece, in which I have made an alteration. For some time I have been annoyed by the burs slipping out, and I made a modification which will grip the bur absolutely and prevent it slipping out or unlocking.

The right angle attachment will be best understood by looking at the bur marked A, and comparing it with the ordinary bur B. The flattened part at the end of the bur is shortened, and a collar slot is cut just under the shoulder. When this bur is put in the

* (The engraver has not given quite the correct angle to the cutting edge of Nos. 1, 6 and 8.—ED. J.B.D.A.)

right angle and turned slightly round to lock it, a forked slide C, which fits the slot is pushed forward by a small spiral spring D. This absolutely locks the bur and prevents its dislodgment. A comparison of the ordinary Hodge right angle C with the improved one D, will show the advantages. There is no nut on the split chuck, and the depth is much reduced; this is a great advantage in operating.

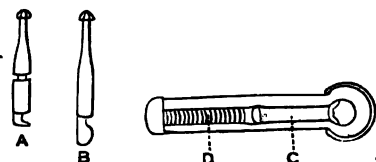


FIG. 5.

This is a convenient little bottle which I find useful for keeping carbolic acid or any other liquid. It contains a small disc of glass, around which there is wrapped some silk. The silk, by capillary attraction, keeps itself always saturated with the liquid, and all you need do is to touch your pellet on the silk, and you

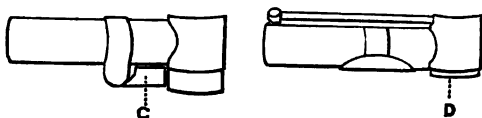


FIG. 6.

get as small a portion as you want. If you dip your pellet into the liquid you saturate it at once and get more than you want.

This is a disc carrier I made, I find it very useful when I want to revolve the disc in the opposite direction. If you use an ordinary disc in an opposite direction you find the screw comes

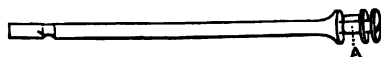


FIG. 7.

undone. I made this disc to obviate the difficulty. It can be manipulated with the thumb nail and screwed sufficiently tight.

The disc carrier is the ordinary mandril, the screw of which has the thread removed for about one third from the head. On this part of the screw a small collar (a) revolves freely. On one side

of the collar is a projecting key which fits into a slot cut in the side of the mandril. The disc is pushed on to the collar and the screw carries it down without revolving the collar and locks it close to the face of the mandril.

In reference to the flasking of cases for vulcanite work I have a new flask and a new method to show.

The flask as you see consists of only two parts, A and B, and a bolt and nut to fasten them altogether. The method of using it is as follows: The case is set up as usual in wax, tried in the

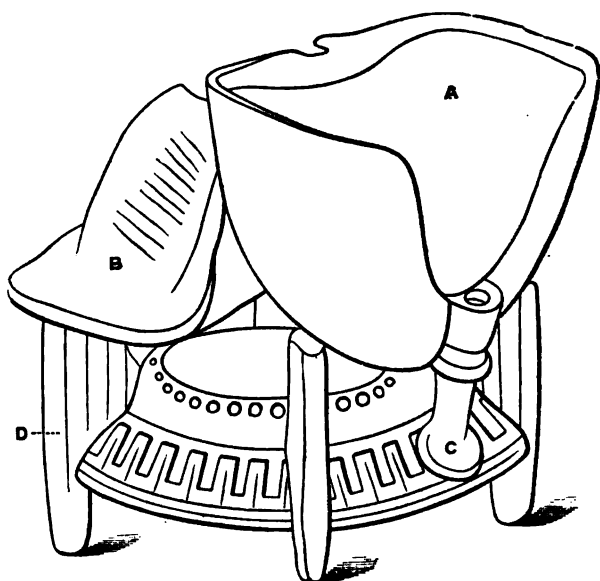


FIG. 8.

mouth and replaced on the dried model. The labial portion of wax is cut away and that portion of the model which is exposed by the removal of the wax is painted with a solution of rubber in chloroform; warm rubber is packed on to represent the wax which has been removed, care being taken not to displace the teeth. The model is trimmed if too large, and is soaked in cold water. While it is soaking mix a batter of plaster and bed the model with the case *in situ* in the chamber portion of the flask A. Trim the plaster while it is hardening, paint the surfaces with vaseline. Mix

another batter of plaster, fill in and insert the tongue-shaped part B. When the plaster has set, place the flask in hot water for three minutes, open, scald out the wax, and pack with rubber the palate portion of the case; put a piece of wet cloth over the tongue-shaped part B, put the parts A and B together and squeeze up in the vice, it does not require much force. Separate the parts of the flask to see if you have enough rubber; if not, add what is required; if too much trim it off. Take off the wet cloth, replace it by a piece of thick tin foil, put together the parts of the flask, and having screwed it up with bolt and nut it will be ready to put in the vulcanizer. You will observe that the flask while it is being packed is resting on a special holder C, on a Fletcher's No. 10 Standard burner D, and is quite ready to squeeze up as soon as the packing is completed, thereby saving time.

This flask has no clamp and only one loose bolt and nut, and is made of a special nickel bronze, which is very hard and tough.

The Past, Present and Future Training for Prosthetic Dental Work.

By J. CHAS. STOREY, L.D.S., Hull.

IN dealing with the subject of "*Prosthetic Dental Work*," it may be helpful to arrange our remarks under three somewhat arbitrary divisions:—viz, *The Past*, *The Present* and *The Future*.

The Past.—In speaking of the past, we are for the moment tempted to revert to the far distant times, and thus show graphically the evolution of prosthetics. But as we desire above everything to be practical, we will restrict ourselves to the period within the memory of living man, and confine our survey to the present century.

Our elders tell us that "the good old days," before the introduction of vulcanite, was the time when *real* work was done. It was then customary to make, in the workroom of each dentist, not only the plates, but actually the tools themselves, and the various accessories, which we now purchase from depôts. Thus the apprentice became accustomed from his earliest days to exercise his inventive faculties.

In this pre-vulcanite era, the ordinary process was to take a wax impression of the mouth. In due course from this a zinc cast

was made. Then a block of walrus, of approximate size and shape, was selected, and the task commenced of making the plate to fit the zinc cast. This meant the shaping of the block to fit the palate, which was at first done roughly with large sculptors, the eye, aided by an occasional testing with the zinc, being the guide. As the work progressed vermilion was brought into use, until by and by, what they called a fit was obtained. During the process of shaping, observation was used to prevent too much being taken away over the alveolar ridge, sufficient being retained to carve out the back teeth, while in the front the bone was cut away to allow of six natural teeth being carefully fitted. These were attached by gold pins, screw-tapped through the teeth, and riveted to the bone. All this meant long, tedious, and more or less careful work. Then they made *sets, upper and lower*, in heavy gold plates, on to which were fitted sometimes natural teeth for the front, and blocks of ivory for the back, the latter often wonderfully carved.

Later, tube teeth were introduced, and many beautiful though massive specimens made *entirely* after this manner, are still extant. It is not to be overlooked that bolts and swivels for springs were not purchased by the dozen then, though their frequent use would have made this convenient. Each dentist made his own, and no little pride seems to have been taken in this department. It was also the universal custom for everyone to melt down his own gold, to alloy, and roll it.

Gum teeth, particularly for the lower fronts, were frequently used, and the fine and careful fitting of these required skill of no mean order. It is, however, only fair to say that in this work, requiring the eye of the artist, and the hand of the sculptor, while a great deal of it was splendid, and such as we may well glory in, yet through absence of training, or worse still, bad training, there was very ill work placed in the mouth. A respected member of our profession tells me that "in an important town in Yorkshire there lived a dentist who, when remonstrated with on the large, rough grindstones on which he fitted his teeth, said: "Why this is what I call fine grinding; my father used to grind his teeth on the sinkstone." This is but typical of what men, who are ill-adapted for the sphere into which by some mischance they have tumbled, will do. Still we must agree that on the whole, in the past, the apprentice in a practice where there was an attempt to do real, honest work, had great opportunities of cultivating both

hand and eye, and thus was likely to develop his ingenuity and inventive faculties. Further, whether he was a pupil who had paid his premium, or the son of a poor person to whom a few shillings weekly were paid, he had always a vague idea that somewhere and somehow in the future he might get into practice. There was no little stimulus in the fact that his eye might ever rest on the topmost rung of the ladder.

The Present.—The passing of the Dental Act has marked an epoch in our workrooms. Yesterday, as we have said, there was no barrier to ability, combined with sterling worth and perseverance, climbing to successful dental practice, but to-day this is quite changed. To be a dentist means that before the workroom duties are undertaken a thorough examination should be successfully passed in the subjects usually included in a good middle-class education, and this is but a prelude to a series of searching examinations, principally in operative work, having reference to the obtaining of the dental diploma—the *sine quâ non* of practice. It may well be argued that this is supplemented by a peremptory injunction that three years shall be spent in the workroom, but unfortunately those of us who come in contact with the modern L.D.S. find that only here and there does this mean real work. As the law allows, this is oftentimes taken simultaneously with hospital practice, and is made entirely secondary and subsidiary to it. Again, not an inconsiderable number of men enter for the M.R.C.S. and L.R.C.P. in addition to the L.D.S., and while we shall not assert that, given an abundance of time and favourable pecuniary circumstances, there may not be advantages obtained from this, yet when we remember that under the new regulations this will mean something like three years' extra (largely theoretical) work, we *do* say that if it be done, to the detriment of mechanical training, the wisdom of such a course is very questionable.

In the past the dentist had some sort of guarantee that, after his careful training, his pupil would stay with him until he was perhaps twenty-four or twenty-five. To-day we know that in three years, or if by reason of strength, and greatly to the pupil's own advantage, we keep him four years, when he is just becoming serviceable we lose him—never to return—for, his diploma completed, he is not content to continue mechanical training. This is, somehow, now thought to be *infra dig.*, and so he settles down into a regular practitioner, before long wishing that he had

devoted more attention to prosthetic work. Nor is all the evil stated yet. Granted that three years' mechanical training is too little, and further, that this evil is increased when the time is not fully devoted to it, we must now ask ourselves the question, whether when we have accepted the hundred guineas or more, and have signed an agreement to well and faithfully teach, we have done our duty in this respect. It is not enough that, as we turn our horses into the fields and expect them to eat, so we turn our pupils into the workroom and expect them to pick up the necessary skill. Our duty is *to teach*, and just as the principal in a large engineering business may do this kind of work through foremen, so if we are unable to give the time ourselves we ought to provide a competent person to act for us. Otherwise we are morally culpable.

Still dealing with the present, we must give a passing word to the recent arrangements at the London Dental Hospital in reference to this subject—the establishment of a laboratory with a demonstrator. This is undoubtedly a step in the right direction, and as it is ostensibly stated to be supplementary to the ordinary mechanical training, cannot fail in usefulness. It has, however, revealed the painful fact, which I have on excellent authority, that the majority of the students presenting themselves—the pupils, be it noted, of respectable practitioners throughout the country—often lack knowledge of the elementary principles of prosthetic work.

And now having thus briefly glanced at the past and the present, deducing, as we think is self-evident, that while the past was good so far as it went, the present is eminently unsatisfactory, it remains for us to discover, if possible, what course is the best to pursue in the future.

The Future.—It seems to us that for the successful carrying on of our work, it is highly desirable that the L.D.S. of the future should be fully trained to execute his own prosthetic work. We are to-day only touching the fringe of the dental services that will be called for in the not very distant future. The educational process now going on—largely by means of our dental meetings in various parts of the country, accelerated of course by the advanced state of general knowledge,—is slowly but surely permeating the minds of our thinking population. Ere long the call for well-trained dentists will be so urgent that there will of necessity be an influx of students, who will in due time become practitioners.

Now we fear that, notwithstanding the great advance in operative skill, the state of the teeth will always require a great deal of prosthetic work. If this be the case, who is so likely to carry it out well, as those whose lives are of necessity spent in close observation of the natural organs, which they are called upon to replace? This is an art which will call forth the highest skill; the better educated the man to whom it is entrusted, the more likely will he be to produce really excellent results, that may be considered as true artistic work. Nevertheless there will always be dentists who will acquire large practices, making a demand on their time which will render it impracticable for them to personally carry out all the details of their prosthetic work. But they may, and indeed if they are faithful to their patients they *must*, themselves see that the work is carried out in an artistic manner by mechanical assistants, who, if trained as they ought to be, may conjointly with the dentist turn out splendid work. Indeed, I am now cognisant of practices where an artistic principal, working in unison with a clever mechanician, are gaining better results than either could produce separately.

If in the very early future there must be a loud and earnest call for the best class of dental work, and we are agreed that this demands that the prosthetic work be either executed or supervised by the qualified practitioner, it behoves us to devise the best possible means whereby those who shall be required for this work may be successfully trained. For the future, then, we need mechanically-trained L.D.S.'s, and mechanically trained helpers.

In dealing with these two classes we will, for convenience, speak of the former as *pupils*, and the latter as *apprentices*.

An old cookery book begins a description of the process of cooking a hare by saying, "First catch the hare." In our work it is of vast importance that we should catch the right boy for pupil or apprentice.

If the youth has not a mechanical tendency and an earnest spirit, he is of little value for our purpose. Before making the agreement final it is always well to give opportunity and time, to know whether there be real affinity for the work. Better, both for the youth and the principal—even though six months have gone past from the starting-point—that the agreements should be cancelled, than that a youth should be placed in a profession for which he has no aptitude, and thereby bring misery on himself and disappointment to those who are interested in his welfare.

Those whom we require for *pupils* are bright, intelligent fellows, who, while not wanting in intellectual abilities, have also a delight in using their hands. As *apprentices*, we may get recruits from the class who are overcrowding into the sphere of working engineers, or better class artisans. If it is shown them that there is a good opening, with comparatively short hours, of earning easily from £2 to £5 weekly, according to ability, we think that such would readily be obtained.

Do these two classes, who are to occupy two distinct niches in the requirements of their profession, need the same style of training? We think they do, because they are complementary and supplementary to each other. But while, on the one hand, the *pupil* is taking the mechanical as a *part* of his life's work, the *apprentice* here finds his *ultimatum*, and so will naturally take a longer course of training. Broadly speaking, however, it will be the same for both.

As a matter of fact to-day, having these two classes in our workrooms, we distinguish between them only in the fact that the one who has paid the premium is not put to do menial work, nor to run errands; while the one to whom we pay wages is expected to be at our call for outside labours, so long as he is less profitable to us.

Now as to the means of acquiring the training. Mr. Dennant, of Brighton, in his Presidential address at the Southern Counties Branch, in June last, to our mind struck the right note for the country generally when he drew attention to the fact that we have now, at our very doors, the means of technical instruction.

Of late years technology has received great attention. The improved facilities with which successful results are obtained in the arts and industries generally, through the application of scientific principles, should be utilised by us to the full.

In our technical schools general principles are taught which are alike applicable to all manipulative industries, and, as far as these may be adapted to our requirements we shall do well to avail ourselves of them.

We would further suggest that *pupils* be taken for four years—the three years prescribed by the curriculum is too short a time; that *apprentices* should be taken for six or seven years.

If we are to interest ourselves in their real training, we must receive a *quid pro quo*, and this can only be done by having length of service, with liberty to avail ourselves of extraneous help.

In a centre like Sheffield, where we meet to-night, the way is comparatively easy. I take it that in the very blood of the natives there is a mechanical tendency, and no doubt heredity has its share in producing the class of ability which has often been shown here. But you have also the advantage of a fully equipped technical school—one which seems, indeed, especially prolific in facilities for training in this branch. During the first year of pupilage the pupil should give daily attendance at the drawing classes. Sir Philip Magnus, a member of the late Royal Commission on Technical Instruction, says: "One of the first and simplest means of cultivating the hand, and of making the hand and eye work in harmony, is the teaching of drawing. Educational theory, and the needs of practical life, alike prove to us that drawing lies at the very root of what we call Technical Instruction."

An hour a day should be devoted to this. Two to three hours daily should be given to manual training. I do not mean dental training, but that given at the technical school, on the use of tools, and the "how and why" of keeping them in order. Probably the best start in this direction will be gained in wood-work. It is a suitable material, and the general principles gained in elementary joinery will be of practical utility all the way through.

During this first year, some three or four hours daily should be spent in the dental workroom, and thus familiarity with the requirements would be obtained.

In the second year the drawing lessons would be discontinued, and wood-carving and turning, metal work and clay-modelling, would occupy some three hours daily; the remainder of the day being spent in the workroom routine.

In the third year, the pupil would spend his days entirely in dental work. In the fourth year he would continue the same. If in a town or city where a dental hospital and medical school existed, he might now commence his hospital work, making up for loss in the mechanical training by devoting some part of his fifth year to the workroom. If he lived in a town not so favoured, in the fourth year he might fulfil the requirements of his curriculum in medicine and chemistry, attend science classes on physiology, and work up osteology.

At the end of four years, if so occupied, he could enter the hospital, and would be able to hold his own in most departments.

With regard to the apprentice ; he would, likewise, devote his time after the commencement of the third year to regular work-room routine, though he should be encouraged to attend classes in theoretical and applied mechanics, steam, magnetism and electricity, and indeed, any subjects likely to be of auxiliary usefulness in his future work.

In towns where technical schools are not established, there will generally be found opportunities for instruction in technological subjects in the evenings. Under such circumstances I would suggest the desirability of relief from daily duties for the purposes of both study and recreation, for a time corresponding to that employed in the evenings.

In addition it is highly desirable that a small lathe should be placed in the workroom, as thus there will be both opportunity for, and incentive, to the development of mechanical appliances, and consequently to the display of original work.

We put this forward not in any sense as an ideal, but as a plain, practical scheme, the working out of which is within the reach of most of us—of course easier of realisation in the best form by those in towns where technical schools are established. It has the advantage of being ready to hand and involving little or no outlay.

There is another scheme which is much more elaborate, and includes all we have proposed and a good deal more. We are indebted to Mr. George Cunningham for its conception and elaboration. I refer to the projected school of technology. This provides for an alternative system to the present pupilage and apprenticeship. In a central institute, distinct from the present hospitals, prior to entering them, it proposes to give a thorough course of training in wood work, metal work, and clay modelling, to be followed by instructions in the usual routine of the workroom, including crown and bridge work, the making of obturators, and continuous gum. Physics and chemistry are also to be taught on the laboratory method, as well as practical metallurgy.

The scheme appears to be well considered, and has much to recommend it, provided it be hedged round with safeguards to prevent the creation of a class of men who will commence practice on their own account as artificial teeth makers.

It would probably give an immense impetus to this branch of our profession. We think the care already expended in its elaboration, and its evident merit, entitle it to the most careful consideration, and that it has promise of much future usefulness.

However, be it by centralisation or decentralisation, we fully believe that it is of the highest importance that the standard of prosthetic work shall be raised, and we unflinchingly adhere to the opinion that the time given to training in this department will be amply repaid by increased manipulative skill in every branch.

We have to-day increased facilities for work, and with our advantages, instead of inferior work to that of our fathers we ought to be producing something better.

Ruskin may be aptly quoted here; he says, "All old work nearly has been hard work. It may be the hard work of children, of rustics; but it is always their utmost. Ours has as constantly the look of money's worth, of a stopping short wherever and whenever we can, of a lazy compliance with low conditions; never of a fair putting forth of our strength. Let us have done with this kind of work at once!"

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

THE usual monthly meeting of the above Society was held on Monday, November 7th, the PRESIDENT (Mr. J. Howard Mummery) in the chair.

The PRESIDENT, in welcoming the members at the commencement of a fresh session, said it was his painful duty to record the loss of three valued members of the Society—Mr. Charles Vasey, an original member and one who had held the various offices in their Society, Mr. Richard White, of Norwich, and Mr. Edmund Kelly.

The minutes having been read and confirmed, Messrs. A. R. Colyer, P. Edgelow, Mansbridge, Rushton, Wrighton, Moon (Newcastle), Amoores (Edinburgh) and Reading (Sydney) were admitted members. The Librarian's report showed that several books had been added to the library.

Mr. E. LLOYD WILLIAMS contributed a casual communication. It was a case of a supernumerary tooth occurring in an infant two years old. The patient had been brought to Westminster Hospital with the history that the tooth had been cut thirteen months previously. The tooth was especially interesting from the fact that at first sight it would appear to be a supplemental central incisor, but further examination revealed its true nature.

Mr. DAVID HEPBURN had met with a similar case, the tooth having been sent to him by Mr. J. F. Corbett, then resident in Ireland.

Mr. CORBETT said he regretted he had not taken a model of the child's mouth; he remembered, however, that in his case there were

two supernumerary teeth placed behind the two lower centrals. All the temporary teeth were standing.

Mr. M. HOPSON had met with a case of a supernumerary tooth in the upper jaw of a child aged six, it geminated with the left central incisor; he would have pleasure in presenting the specimen to the society.

Mr. HENRI WEISS showed an ingeniously-contrived mouth mirror, oval in shape, fitted upon a ball and socket arrangement with a clamp, so that it could be fitted on the lower teeth.

Mr. STORER BENNETT then read a paper on "Mechanical Devices for the Retention of Artificial Dentures." He said the methods he proposed were simple in the extreme. In one method a self-adjusting band was employed which was constructed upon the principle of the snap rings used on watch chains. In the second method a contrivance was used founded in idea upon the hinge joint used in brooches. To make the self-adjusting band a thin gold tube $\frac{3}{8}$ inch long was taken and made solid at one end for $\frac{1}{8}$ inch, a piece of gold wire $\frac{1}{16}$ inch being soldered into it. A screw was cut opposite the extremity. A slot was sawn through the middle of the solid end of the tube parallel to the long axis, and as far back as the hollowed part of the tube. The tongue or central portion of the hinge was fitted into the slot. A hole was drilled through the solid portion, and through this tongue at right angles with the slot was fitted a band. A band was next fitted to the model and to the anterior extremity of tongue. A piece of open spiral spring was then put into the posterior end of the tube, so as to touch the back part of the tongue, and secured by a screw plug inserted behind it. The band was attached to a gold plate by soldering after removal of the spiral spring. It was necessary if vulcanite was brought near the hinge to introduce some osteo before packing. To construct a band which could be opened and left so while a plate was fitted in the mouth, and which, being afterwards closed, fixed the teeth and plate in position, an ordinary band was turned up and then soldered to the piece of tube which formed the central part of the hinge joint. The joint and spring were enclosed in a tiny box $\frac{3}{8}$ inch in length and sealed up, which proceeding protected from ingress of rubber or food.

The advantages of the self-adjusting band were, that it would open or close over the expanded part of the teeth, steadying the plates in position. Secondly, the spring pressing on the band enabled the plate to be easily moved without pressure on the teeth, thus avoiding friction. In cases where the second bicuspid and the first molar were lost on one side only, while the teeth on either side of the space were tilted, it was difficult to adjust the plate, for it either was too large to go into the space, or a space was left between it and the natural tooth. Mr. Storer Bennett suggested the use of the "locking bands" described above as simplifying treatment, and being better than the usual mode of applying a plate. When a front tooth was lost, producing a wedge-shaped

space, having the base towards the tongue, he suggested a plate tooth attached to a small plate by a brooch joint, so that the tooth was placed in position by turning up the teeth completely out of the way. The plate might thus be arranged in the wedge-shaped space, the spring holding it in position. To effect this, a plate was taken to fit accurately the gap. A thin flat tooth was backed and fitted in the usual way, so that the small band fitted to the buccal surface on either side of the gap. A small band passed behind the tooth on either side of the lingual surface, thus obviating forward displacement. A piece of plate (12-carat gold) was cut so as to have two parallel lines somewhat resembling a cone with three teeth on its outer side; a small piece of tube was soldered. This middle piece of tube was then soldered on to the backing of the tooth, a pin being run through the hole, and there was a common brooch joint allowing the tooth to move upwards and downwards on the cone. A pin was run through all the three pieces of tube uniting the unattached teeth to the plate itself; there was thus obtained a tooth working on a hinged joint capable of being moved up or down as desired.

When, as sometimes happened, the buccal bands were too conspicuous, a small plate might be taken, fitted accurately to the size of the nearest part of the gap, an ordinary tooth was taken and backed in the usual manner, two plates were then fitted, one being soldered to the plate, a piece of small gold tube was soldered transversely across the gap on the back of the backing of the tooth, one end of the gap was closed by the plate and the other left open, a small slot was cut parallel to the long axis of the tube, while a piece of wire was soldered in such a way as to be capable of moving outwards or inwards; a piece of open spiral spring inserted into the tube threw the band outwards towards the tooth; 15-carat gold was used by Mr. Bennett for his spiral springs and 12-carat (pale) for the bands.

At the conclusion of Mr. Storer Bennett's paper, the PRESIDENT spoke of the value of the paper; the profession had, he said, hitherto regarded hinged teeth as peculiar to fishes! The contrivance of the band evinced a considerable amount of ingenuity, while the suggestion of the small lower plate seemed likely to offer a solution to a great difficulty.

In the discussion which ensued, Messrs. T. S. Carter, Henri Weiss, David Hepburn, E. Lloyd Williams and J. H. Badcock took part. To these Mr. STORER BENNETT replied, and in the course of his remarks stated that he wished it to be clearly understood that he regarded the appliances described as supplemental to, rather than revolutionising, the methods in ordinary use.

The PRESIDENT having put the usual votes of thanks, announced that the paper at the next meeting would be read by Dr. Sims Woodhead. The meeting then closed.

HOSPITAL REPORTS AND CASES IN PRACTICE.

A Case of Œsophagotomy for the Removal of an Impacted Tooth Plate.

(We are indebted to Mr. T. D. Manning for the notes of this case):—

R. C—, age 42, a thin, rather delicate looking woman, was admitted into Guy's Hospital on 14th September, with a history of having swallowed, on the previous evening, a single false tooth attached to a small silver plate. Repeated attempts were made to extract the tooth plate by means of Œsophageal forceps, but with no success, though the plate could be felt about the level of the cricoid cartilage or a little below.

At 3 p.m. patient was seen by Mr. Symonds. She was put under chloroform, and Mr. Symonds succeeded in gripping the plate with Œsophageal forceps, but finding that it was quite immovable decided to do an Œsophagotomy. An incision was made about three inches in length along the anterior margin of the sterno-mastoid, commencing above at the upper border of the thyroid cartilage on the left side. The sterno-hyoid muscle was then exposed and separated from the sterno-mastoid by means of retractors. The thyroid gland and trachea were then successfully separated from the carotid sheath and the Œsophagus exposed. It was opened by means of a longitudinal incision $1\frac{1}{4}$ -in. long. The plate could be felt about an inch below the opening, and was withdrawn by means of a pair of dressing forceps, with some difficulty.

The incision in the gullet was closed by means of a continuous suture of fine silk. The wound was washed out with 1-2000 perchloride and closed by a continuous silk suture, a medium-sized drainage tube being left in.

The hæmorrhage was slight, the only artery of any size which was divided, being a branch of the superior thyroid.

The patient suffered from very persistent and uncontrollable retching after the operation for about twenty-four hours, at the end of which time she began to complain of slight cramp-like pains in the chest, directly behind the sternum; but not much attention was paid to this as she gave a history of having suffered much in the same way several times during the past few years. She was fed entirely, *per rectum*, only taking small quantities of ice by the

mouth to relieve her thirst which was intense. Her mouth was washed out at intervals of two or three hours with lot. pot. permang.

The next morning (September 16th) she seemed comfortable except for the pain in her chest which was slightly worse; but her temperature suddenly rose to 102° (F). The wound was dressed, it looked quite healthy, and the drainage tube, which was removed, had no foul odour. There was no inflammation round the wound, and the patient had no pain in that region. The conjunctivæ had a slightly yellow tinge.

In the evening of the same day the patient became rather restless, but her temperature fell to 99° , and she seemed on the whole better.

During the night she became more restless, with occasional delirium. Her pulse and respirations became rapid and weak, the temperature gradually again rose to 102° , by the next morning (September 17th) she was quite unconscious, and death took place at 12 noon on that day—three days after the operation.

At the *post-mortem* examination there was found to be œdema, and congestion of the upper part of the œsophagus, especially round the incision, some pus in the deeper part of the wound, and considerable infiltration downwards into the posterior mediastinum. The superficial part of the wound was fairly healthy. About an inch and a-half below the point where the œsophagus had been opened, was a laceration about $\frac{1}{4}$ -inch long of the mucous membrane, not extending into the muscular portion of the organ, and evidently caused by the imbedding of the tooth. The other organs of the body were normal, except the lungs, which were both œdematous, especially the right where there was also 5 ounces of effusion.

The damage caused by the tooth and its plate in the gullet was clearly not sufficient to account for the death of the patient, which must be attributed to the constant retching during the first twenty-four hours after the operation. This probably stretched the sutures which closed the incision in the œsophagus, and at the same time projected septic material into it. The fact that there were no signs of septic trouble about the external wound may be accounted for by the fact that drainage was very difficult, especially from the lower part of the wound, owing to its being completely closed by the sterno-mastoid muscle overlapping the sterno-hyoid and thyroid beneath it.

The tooth was an upper central incisor, kept in position by a thin silver plate $1\frac{1}{4}$ in. by $\frac{1}{2}$ in., moulded to the hard palate. This had numerous sharp projections along its anterior edge, and in particular two long hook-like processes on either side of the false tooth itself.

Complete Closure of the Jaws due to a Gumma of the Masseter Muscle.

REPORTED BY JOHN LANGTON, F.R.C.S.
SURGEON, ST. BARTHOLOMEW'S HOSPITAL.

COMPLETE closure of the jaws is not infrequently seen in practice, and may be due either to *intrinsic* disease originating in the temporo-maxillary joint, or to *extrinsic* causes involving structures outside the articulation. The diseases implicating the joint are frequently permanent, unless remedied by operation, while those situated outside the joint are often amenable to treatment, if the cause can be discovered and treated.

I have seen from time to time instances of complete closure of the jaws, due to gummatous infiltrations into the masseter muscle, and lately I have had under my care a woman who illustrates well the cause and the course of the disease.

Mrs. W—, æt. 51, a Frenchwoman, married, but with no children and no history of any miscarriage. She affords no evidence of acquired or inherited syphilis.

The history she gave was, that in the beginning of March, 1892, she for the first time noticed a swelling of the face, over the ascending ramus of the right half of the lower jaw, and another swelling immediately above the right elbow. She sought medical advice about the end of the same month, and attended as an out-patient at the dispensary, where she was treated with potassium iodide and bromide, five grains of each to be taken three times a day. At the same visit she was ordered to apply some ung. hyd. nit. dil. locally to the swelling.

This treatment was continued until the middle of May with no good result, and so she applied two days afterwards to St. Bartholomew's Hospital

Her general appearance was that of fairly good health, with the exception that she was somewhat thin, owing probably to the affection of the jaw preventing her taking sufficient nourishment.

She stated that for the last two days she had been unable to open her mouth more than one-eighth of an inch, and that this came on suddenly in the night.

On examination of the cheek, we found a hard mass of the size of half a walnut, firmly imbedded in the substance of the right masseter muscle close to its attachment into the bone. It was painless, and the skin over it quite normal and not adherent in the slightest degree to the mass. The swelling was smooth and ill-defined, but the induration gradually lessened, so that the upper third of the muscle was quite natural. The lump had increased slowly until it attained its present dimensions, and had never caused any pain.

On passing the finger into the mouth, it was clear that the growth was situated in the muscle, and was hardest and largest close to its insertion into the maxillary bone. She had lost two teeth by removal, and there was one present. The alveolar border of the bone was normal, with no thickening on its inner or outer surfaces, except close to the attachment of the muscle. The submaxillary lymphatic glands were in no wise enlarged. Questioning the patient as to the existence of any other enlargements, she said there was something near her elbow, but made very light of it. On examining it, I found about two inches above the internal condyle of the humerus a small, firm, subcutaneous indurated mass, about the size of a small broad bean. The skin over it was normal in colour, but was slightly adherent to the mass, which she stated appeared about the same time as that in the face.

She was ordered at first ten grains of the iodide of potassium, which was rapidly increased to fifteen and then to twenty grains for a dose. The swellings under this treatment gradually disappeared, so that at the end of six weeks she could open her jaws to the full extent. Thinking she was quite cured, the patient discontinued the use of the drug for a fortnight, when she again applied for relief, as her condition was in every respect as bad as when she first applied. Under the same treatment she again improved, and was discharged cured at the end of a month, and has remained well ever since, a period of over two months.

Remarks.—The closure in this case could not well be accounted as due to spasm of the masseter from a non-erupted wisdom tooth, for all the molar teeth could be accounted for, and the somewhat advanced age of the patient, precluded almost with

certainly the supposition of this cause. The absence of thickening of the bone, and freedom from swelling of the face and from pain also negated the theory of an uncut wisdom tooth. The inferior maxilla is not rarely the seat of chronic syphilitic periostitis and osteitis, but in these cases the signs are usually unequivocal. The muscular structure of the masseter is largely interspersed with fibrous bands, and this, together with its constant action may, in some cases, explain its liability to gummatous deposit. The association of another gumma in the arm, helped to clear up the diagnosis, but usually we have no such guide for arriving at a correct diagnosis.

The cases I have seen required large doses of the iodide of potassium before the effusion completely cleared up, and this case affords no exception to our clinical experience.

MINOR NOTICES AND CRITICAL ABSTRACTS.

A Practical Cheoplastic Plate.*

By C. W. STAPLES, D.D.S., Lyndon, Vt.

NO arguments are needed to convince you of the superiority of metal over rubber and celluloid as a base for artificial plate, and it is equally an established fact that tin has a beneficial influence upon mucous membrane as well as upon dentine.

That there has been some reason why each successive alloy of tin with methods of working has not been practised in any considerable proportion of cases, has crowded such bases out of the position that they should occupy.

It is my purpose to present a method or rather a combination of methods (for which I claim no originality), by which a lower plate, either partial or full, can be constructed in about the same time as that required for rubber, overcome some of the former objections to such cheoplastic plate, and still retain the advantages of metal.

Such a plate must be made so as to accommodate gum teeth as well as plain without adding any extra risk of breaking. In the ordinary methods the full lower cases have been too heavy, and the gums cracked, either during construction or in after years by the softness of the metal allowing them to move slightly; this we overcome by using rubber attachment. Then in the case of lower partials, the patient was sure to bend and break the plate unless it was made thick and bungling; this we overcome by a wire spring of Dr. W. H. Dorrance invention.

Explanation.—Proceed as usual with impression; model may be

* Read before the Vermont State Dental Society, March, 1892.

poured of plaster, but plaster with asbestos or whiting is safe. To this model fit accurately a piece of piano-wire, (No. 14, 16 standard gauge), along the arch so as to leave the arch about opposite the first molar; after fitting this wire to the arch bend each end inward at right angles with body of wire, then about a quarter of an inch from first bend make a second by bending wires upward forming an obtuse angle. This is done so that the wire will be held firmly in the plaster of the upper half of the flask; this done, take a file and make a notch on each side of wire in the first bend of each end, this is done so that the wire will break in the proper place and easily when wanted; sand-paper the wire to remove all dirt from surface, and dip first into muriate of zinc, then into melted tin; this is done so that the metals used for plate will flow along and become attached to the wire; the wire prepared, cover the model to just the extent that you wish the plate to cover the ridge when done. It is now necessary to decide whether to use a solid plate of metal or a rubber attachment. In nearly all cases if full lower, and if partials with much absorption, I use the latter, and have selected such a partial for description.

Warm the tinned wire and press into place, and cover the scar with a fresh piece of wax, which is now ready to flask. For this I find the Watt's flask most convenient, although the Westner is good and the one used in this case. In flasking care must be used to have sufficient plaster under the ends of the wire to hold them firm and without breaking in the upper part of flask. With sharp knife make a groove around the edge of plate in upper part of flask just where edge of rubber will finish to and is done so as to furnish a more secure attachment for rubber and a larger surface of metal next to the mouth.

For a more secure attachment, especially in full cases, I make several pits about half an inch deep in upper part of flask over the ridge; these can be made with an old excavator sharpened like a screw-driver. Now cut a gate from each angle; this I make ample, as it can do no harm and proves a great convenience.

The two halves of flask are now dried separately, in a temperature that will not calcine the plaster; the oven of ordinary heating stove (as Stewart, Mogie, &c.) is a convenient place. When a mirror held over the warm flask will not gather the slightest moisture they will do to pour, and not until then.

When dry the surface of the model should be rubbed with a piece of base plate wax to smoothen the surface and also to act as a flux for metal. The mould should be warm, and the metal but very little above melting point when pouring, and should be cooled slowly to obtain a smooth casting. After separating, the wire should be broken off with the finger. It will break just below the surface if the notches have been made as described. The small hole at each place where wire is broken is to be filled with some metal as that of which the plate is made, with a soldering copper (not tinned). To do this moisten the surface of plate about the hole with HCl, or chloride of zinc, and place a piece of the metal over it, and melt into place with warm copper. Now with a file smooth off plate in a rough form and fit to mouth; after fitting take the antagonism using plate just made as base plate, then proceed as usual with rubber attachment. Should you wish to make a solid plate after fitting the wire, you would proceed as usual with cheoplastic plates, excepting that after the case is on the articulator, the wire is to be put in place before the teeth are ground.

Any of the alloys of tin in use may be used for construction of this plate. While I have tried them all I like fifteen parts silver to eighty-five of tin, although the addition of 3 per cent. of bismuth makes a good plate.—*The Ohio Journal of Dental Science.*

Unusual Termination of a Case of Cancrum Oris.

By S. W. WHEATON, M.D., M.R.C.P.

PHYSICIAN TO THE HOSPITAL FOR CHILDREN AND WOMEN,
WATERLOO ROAD.

A FEMALE child, aged 3 years, was admitted with a livid red swelling of the right cheek, nearly the whole of the inner surface of which was found to be gangrenous. There was slight enlargement of the glands at the angles of the jaw, and the temperature was 99.2° . The gangrenous surface was treated with nitric acid by the house surgeon, Dr. Wilson Smith, and dressed with iodoform, the child being placed face downwards in order to prevent as far as possible the inhalation of septic material. The child's progress was unusually good. The temperature became normal after two days, and continued so. A small scale of exfoliated bone was removed from the alveolus of the upper jaw on the eighteenth day. A month after admission a small scar only remained on the mucous membrane of the cheek, and the child appeared in perfect health, when, four days later, it vomited without apparent cause. The next day it became drowsy, with repeated vomiting, dilated pupils, and occasional periods of great excitement and terror, apparently connected with visual hallucinations. During the next twenty-four hours it passed into a condition of partial coma, lying with eyes widely open, taking no notice of anything, with an occasional piercing inarticulate cry and divergent squint. The conjunctivæ were injected, pupils contracted without reaction to light, respiration was sighing, pulse irregular and rapid, and the temperature rose suddenly to 102.2° . Intense optic neuritis was found in both eyes, with large flame-shaped retinal hæmorrhages. The child died twenty hours later, without developing any further paralysis, eruption, or rigidity of the neck, the temperature rising to 102° just before death, having previously fallen to 96° . The secretion of urine was very scanty, but albumen was absent even in that removed from the bladder after death.

At the necropsy the surface of the brain was extremely congested, and the grey matter was everywhere of a vivid pink colour. There was no excess of fluid in the ventricles, no opacity of the membranes, no miliary tubercles, or thrombosis of vessels. Both optic nerves were greatly swollen at their ocular ends, so as to be pear-shaped; the retinal hæmorrhages and greatly swollen optic discs were distinctly seen. The kidneys were enlarged and their cortex pale and opaque; the liver fatty, the mesenteric glands swollen. All the other organs appeared normal; the absence of carious teeth or necrosis of the jaw was noted. Microscopically the brain showed marked dilatation of the vessels of the pia mater, with exudation of leucocytes into its meshes. The vessels of the cerebral grey matter were greatly dilated; the perivascular spaces were enlarged, and contained free leucocytes and a few micrococci, which were seen when stained by Gram's method.

The kidneys presented a condition of disseminated tubular nephritis, the cells of the tubules being generally greatly swollen and opaque but in some places quite unaffected. Micrococci were seen in the tubules and in the dilated vessels.

REMARKS.—1. The clinical and pathological evidence shows that death was due to the sudden onset of septicæmia, causing general encephalitis and tubular nephritis. 2. It is a good illustration of the process of "secondary infection," in which putrefactive organisms obtain an entry through the lesion caused by a primary but independent disease, and cause septicæmia or pyæmia. This process is most frequently seen after acute fevers such as typhoid, in which an entrance is obtained through the intestinal ulcers, and in scarlatina and diphtheria, in which the ulcerations in the throat are the point of entry. 3. The gravity of the prognosis in cancrum oris, the patient not being out of danger even after apparently complete recovery. In the case in point, the organisms had probably remained latent in some thrombosed vein in the cheek, and when the clot began to break down they were discharged into the circulation. 4. The presence of extensive nephritis without albuminuria or œdema—a condition of great interest and not so uncommon as generally supposed, and which may be compared with the rarer condition in which general œdema exists without albuminuria. It would seem that some lesion of the vessels of the skin is a necessary factor in producing albuminuria, and that unless a simultaneous lesion of the cutaneous vessels is present—as, for instance, in scarlatina—albumen may be absent from the urine in cases of nephritis.

For permission to use the notes of this patient I am indebted to my colleague, Dr. Sunderland.—*British Medical Journal*.

A Case of Tetanus with Double Facial Paralysis ; Recovery.

By W. HUNTINGTON, M.R.C.S.ENG., L.R.C.P.LOND.

J. K.—, aged 14, farm servant, fell and cut his head on Jan. 4th. The mother covered the wound with stamp plaster, which was allowed to remain adhering for a week. Pus was then observed coming from under the paper, so a poultice was applied and the dressing removed. A day or two after this he complained of stiffness in the jaws and neck, and this increased until the fifteenth day after the injury, when his jaws became firmly locked and he could scarcely swallow. I saw him for the first time on the sixteenth day after the injury. The wound, which had evidently been a badly contused one, was nearly healed, and rather more than an inch in length. It was situated on the forehead, running obliquely upwards and to the left from a little above the root of the nose. He was sitting in a chair and would not lie in a bed, since he found the latter position more irksome and caused worse exacerbations. He could not endure darkness or noise, and required a light all night. His jaws were close together and rigid ; masseter, temporal and sterno-mastoid muscles firmly contracted ; intellect clear ; face expressionless ; when asked to smile, he said he could not ; nor could he properly close his eyes. There was complete paralysis of muscles of both sides of the face. The pupils

reacted to light and accommodation, and the movements of the eyes were normal. He suffered from frequent cramps in the legs and abdomen. His arms moved awkwardly, and the grip of the hands was feeble. Dysphagia was a prominent symptom. There was a profuse flow of saliva, which ran out of his mouth; he suffered much from sleeplessness, for many days and nights only obtaining a few minutes' sleep at a time. He was given a mixture of chloral hydrate with bromide of potassium and tincture of hyoscyamus every three hours, and at night he had opium in addition. In a week's time the paralysis on the left side of the face began to subside, and in another week the right side did likewise, and he was then soon able to whistle, smile, &c. At first he could not walk, but after a fortnight he could do so with assistance; and his action was peculiar, each leg being moved forward from the hip as if rigid through its length, the foot dragging along the ground. The symptoms gradually subsided, and in six weeks he was practically well and able to go away for a change. A short time ago (June) I saw him, and he was in perfect health.

This case reminds one of the form described by Rose of Zürich, and called by him "cephalic tetanus;" but, so far as I am aware, only one side of the face was paralysed in the cases mentioned. From the dysphagia and irritation caused by noise and movement the term "hydrophobic tetanus," already used to some cases of this disease, would here be an apt one.—*The Lancet*.

Hypertrophy of the Mucous Membrane of the Upper Lip.

By WM. ERNEST MILES, M.R.C.S., L.R.C.P.LOND.

THE case I am about to describe is of interest, not only because examples of hypertrophy of the mucous membrane of the lips are by no means of common occurrence, but because it illustrates the tendency to recurrence of these tumours *in situ* after removal by operation, unless that procedure is efficiently carried out.

A. M——, a male inmate of Broadmoor Asylum, drew my attention to the existence of a small pendulous growth arising from the inner surface of his upper lip, a little to the left of the frænum and extending in an outward direction for the space of about an inch. The growth was not noticeable when the lips were closed, but presented a somewhat unsightly appearance when the patient spoke or laughed. It had been slowly increasing in size, and latterly had become a source of annoyance to him during mastication. Previous to his admission here he tells me he had been troubled with a similar growth in the same situation, which he removed himself with a pair of scissors. A cure, however, was not effected, since, very soon after the wound had healed, the growth again began to make its appearance, and had now become troublesome in the respect I have mentioned. Recognising the case to be one of hypertrophy of the mucous membrane, from the nodular and shotty character of the contents of the tumour, I decided upon removing it with the knife. This I did by means of an incision carried round the base of the tumour, taking care not to encroach upon the free margin of the lip. Having removed the superabundant tissue, I noticed several small yellowish-

white bodies about the size of a split pea (the hypertrophied labial glands) scattered over the surface of the wound. These I removed carefully by means of a pair of dissecting forceps and then closed the wound with horsehair sutures. The wound healed by first intention, leaving no deformity, and although it is now some months since the operation, there is no sign of a recurrence of the growth. Mr. Bryant has shown that this hypertrophy is due to an overgrowth of the labial glands, and that unless these are all removed the growth is likely to recur. When my patient performed the operation on himself several of the hypertrophied glands must have escaped removal, and I have no doubt it is to this fact that the recurrence of the growth *in situ* is to be attributed.—*The Lancet*.

Death after an Anæsthetic.

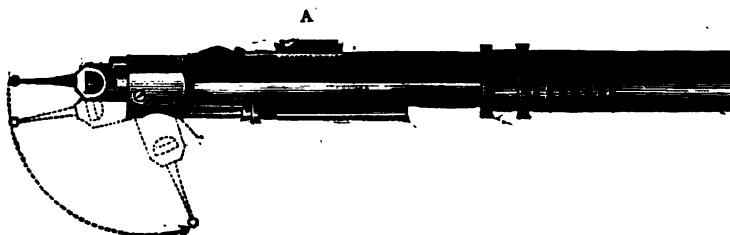
DR. C. NORMAN HAMPER, Resident Medical Officer at the North-West London Hospital, forwards us the following notes of the case of a woman, aged 40, who died on the operating table on September 5th at that institution, after the administration of an anæsthetic. About 8 o'clock on the evening of September 5th, the woman was brought to the hospital in a collapsed, though conscious, condition. She was almost pulseless, so ether was injected hypodermically. On examining the right inguinal region an elongated, hard swelling was diagnosed, so I immediately sent for one of the visiting surgeons. Pending his arrival, I learned that on the 3rd instant she had had a strain, and that she was taken ill almost immediately after. She had vomited ill-smelling (fæcal) matter from the Sunday. On the arrival of Mr. Brodie, one-sixth of a grain of morphine was injected, and, the husband having been interrogated, it was decided to operate. Ether, by means of Clover's apparatus, was at first tried, but, as it caused such violent coughing, it was discontinued, and chloroform (Duncan and Flockhart's) was substituted; but after about five minutes, the patient being anæsthetised, the administration of ether was recommenced, and was continued for about twenty-five minutes, during which time ether had to be injected twice. At the conclusion of this period the operation, save the stitching of the wound and its dressing, was completed, her pulse and respirations became very weak, and she died fifteen minutes after the anæsthetic had been discontinued. Just before dying she articulated sounds and moved, which I think can be construed as returning consciousness. The verdict was understood to be "Death from misadventure," the jury regretting that the patient was not earlier subjected to treatment, but attaching no blame to the hospital. Dr. Thomas's attention was drawn to the fact that the patient did not die during administration of the anæsthetic.—*British Medical Journal*.

It is stated that eight drops of ethereal oil of coriander, thoroughly mixed with a drachm of iodoform, will effectually prevent the disagreeable odour of this latter drug.

NEW INVENTIONS.

Universal Angular Hand-piece.

THIS hand-piece, introduced by Messrs. W. and J. Jamieson is an ingenious piece of mechanism. It is claimed that by its use burs can be worked in all directions, cavities can be reached which are inaccessible to straight or fixed angular hand-pieces, and that the latter instruments can be dispensed with. The head of the hand-piece is adjusted by means of the screw marked A on the figure. The instrument is made of the best steel, is carefully adjusted, and well nickel-plated. We have tested the hand-piece, and think that it will not stand very much wear, as the various

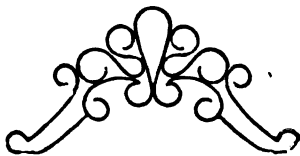


parts are pretty sure to become sooner or later very loose. The bur having so short a bearing does not run with the steadiness required for delicate operations; and, further, the bulkiness of the instrument when used at an angle prevents its application in many places. As an additional instrument it would prove of some benefit, but we would not suggest the abandonment of the usual straight hand-piece for this one.

New Form of Strengtheners for Vulcanite Cases.

WE have received from the Dental Manufacturing Company some new and artistic forms of strengtheners for vulcanite plates. They are the invention of Mr. Juterbock, and are made in 16-carat gold, and claim to be the only ones that really add to the strength of a vulcanite case. They are exceedingly strong without being too rigid, and the metal being placed edgewise in the vulcanite takes the strain in the best direction.

A very nice finish is given to the case by their use, the plate may be polished without the danger of polishing *through* the metal; and being grooved on their external surfaces, they are closely adhered to by the vulcanite.



By the aid of these strengtheners cases may be made very thin, are much improved in appearance, and rendered more serviceable.

The strengtheners may be had with or without a dental alloy bar; but we think the latter adds to their usefulness. The strengtheners can also be obtained for the lower; these all being made with a bar.

Kirby's Dental Motor.

THE dental motor shown by Mr. Kirby, of Bedford, at the Manchester Meeting, promises to fulfil all the needs of the dental surgeon that have hitherto been met by the treadle engine, and we think the inventor is to be congratulated on the novel and very ingenious features which it possesses as now made. It is somewhat difficult to give a full description of it that will be altogether intelligible to our readers without an illustration, so we shall content ourselves by pointing out a few of the main points wherein it differs from other motors, and the claims that are made for it by Mr. Kirby.

To begin, it is said to consume such a small quantity of current that a primary battery can be used, while storage cells (accumulators) will last twice as long with it as with ordinary motors. It is thus economical in use.

No pedal is required with it, contact being made by means of a spring which presses on a stud on the upper part of the pillar of the stand on which the motor is fixed, when the handpiece is drawn forward towards the head-rest of the chair. This device permits the operator to stand upon both his feet in the most convenient position for doing his work. An adjustable collar on the upright

of the stand allows of the stud referred to being placed in such a position that the motor does not commence running until the handpiece is brought quite close to the mouth of the patient ; the current can be cut off instantly by simply pushing the handpiece backwards a few inches. The battery power is thus conserved to the fullest possible extent.

The motor is furnished with a brake or instantaneous stop motion to meet the wishes of those operators who desire such an action. This brake can be fixed under the front or back leg of the chair on the patient's right-hand side, as may be most convenient to the operator, and brought into immediate and effective use by a touch of the foot. It is released by a spring directly the foot is removed.

A most useful feature in the motor, and one which we feel sure will be greatly appreciated, is the speed-regulating screw on the top of the nickel-plated case in which the working parts are enclosed. If the motor be running at full speed its rapidity can be reduced to very slow without any loss of working power by simply unscrewing the regulating screw half a turn or so, and again increased to any degree between the slowest and fastest speed by a screwing-up motion of this screw.

There is a reversing arrangement near the speed-regulating screw which acts thus : when the end near this screw is depressed the motor runs the right way for drilling, and when the opposite end is depressed it is reversed.

Mr. Kirby has made provision for taking up wear by having a screw thread turned on the handpiece end of the nickel-plated case containing the working parts of the motor, and a corresponding thread on the cap, which closes up this end. In course of time the bearings will naturally wear and become loose ; when this occurs all that need be done is to release the small screw which secures the cap to the case, and screw up the cap just sufficiently for the motor to run freely, but not loosely, inside the case.

IN separating teeth, or cutting down fillings with sand-paper discs, it is a useful plan to run both sides of the disc against a piece of dry soap, as it allows it to cut the gold much quicker, to go between the teeth very easily, and still further prevents in a great measure tearing the dam.

MICROSCOPICAL AND LABORATORY GOSSIP.

NITRATE of silver has lately been recommended as a useful agent in the treatment of pyorrhœa alveolaris, and the following method of using it is given by Dr. Stebbins in a recent number of the *Ohio Journal*:—"Remove all calcareous deposits from the teeth. With a slender wood point carry small quantities of the *pulverized* salts down beside the roots of the teeth till every exposed part thereof is touched as well as every portion of diseased gum. Make the application to but a few teeth at a time, so as to be able to keep the spreading of the dissolved salts under control. Keep the mouth as free from saliva as convenient. As soon as a few teeth have been treated inject water freely to carry away the surplus dissolved salts. Then proceed with a few more in the same manner until all are treated. Of course, care should be exercised to protect all other parts of the mouth. Care and skill should enable any operator to avoid the salts touching the patient, or himself, where they are not needed. The use of paper napkins or pieces of cloth to wipe the patient's mouth will save staining other napkins."

WRITING to the *Dominion Dental Journal* on the use to which copper amalgam may be advantageously put, Dr. Beacock says: "Copper amalgam is very useful for many things in dentistry, besides filling teeth. It may be used for fastening a tooth on a rubber plate, making a full crown for back molars, making matrices for striking up a gold cusp or articulating surface for a gold crown, strengthening or reinforcing plaster models, cusps or any part of the gums or root of a tooth, or a whole tooth may be readily built up in the impression before running the plaster into it. This is often very useful when it is necessary to fit a gold or platinum band round a tooth or root, as the amalgam tooth is quite hard enough to burnish on, while the plaster tooth is frail and would be broken. The amalgam can all be saved and used over and over again."

THE following method of polishing instrument points is recommended in *Items of Interest*. Put into a polishing cylinder (described below) the excavator points, burs, or other instruments, and put in with them about two teaspoonfuls of the finest flour of

emery ; close the cylinder ; screw it to the lathe, and run at a good speed till all rust and spots are removed ; take off the cover and examine frequently ; when clean, remove from the cylinder, pour out the emery, and wipe out. Put in one teaspoonful of crocus, two of clean sawdust, a little olive oil, and the points ; put on the cover and run the lathe till polished to suit ; remove from cylinder, and wipe off with chamois skin.

The excavator points should now be sharpened on an Arkansas stone. The engine burs can be nicely sharpened as good as new ; either with a knife-edged Arkansas stone by hand, or with a round knife-edged stone on the engine.

The polishing cylinder for this work is made as follows :— Take a piece of seamless brass tubing, one and a half inches in diameter, inside measurement, and three inches long. Close one end by fitting in a bottom of heavy brass. Now make a heavy brass nut that will screw on to the lathe head ; then solder this nut to the centre of the bottom piece, and place the bottom in the cylinder, solder fast with soft solder. Next make a tin or copper cover, make it to fit on tightly, so that it will not come off during use.

COPPER HARDER THAN STEEL.—One of the most wonderful discoveries of modern times is reported from Quebec. Ferdinand Allard, a poor blacksmith of that city, has discovered how to temper copper so as to make it harder and tougher than steel. He has exhibited a number of copper axes and other edged tools, which rival in edge and temper the best steel implements made. Recently he prepared a sheet of his hardened copper one forty-eighth of an inch in thickness, and had it tested at the Government rifle range. At the first shot fired, from forty yards distance, the bullet shattered into fragments ; on the second, the missile, striking the copper more fairly, was completely flattened, but remained imbedded in the plate, which it merely dented lightly without cracking it in any way. This is claimed by experts to be vastly superior to anything the best steel could do under like circumstances, and the matter is to be brought under the immediate notice of the British Lords of the Admiralty. The leading military authorities here express the conviction that if on further trials in the English dock-yards the discovery maintains the same superiority, most important results must follow, and existing systems be completely revolutionized.—*Discovery.*

A SOLUTION, composed as follows, will be found useful in antral disease :—

Boracic acid	...	...	...	...	12 parts
Salicylic acid	...	...	...	...	4 "
Water	...	...	...	...	1000 "

AN alloy composed of ninety-five parts of tin and five parts of copper will connect metals with glass with great tenacity. The addition of one-half to one per cent. of lead or zinc, rendering it softer or harder as required. To prepare the alloy, the copper should be poured into the molten tin, stirring with a wooden mixer, and afterward smelting. The *Pharmaceutical Record* says that this alloy is also good for coating metals, imparting to them a silvery appearance.—*Items of Interest.*

ANNOTATIONS.

THE ANNUAL MEETING AT BIRMINGHAM, 1893.—We have received from the Secretary of the Museum Committee, Mr. F. W. Richards, the first notice in reference to the Annual Museum. The Committee do not think it desirable to repeat the General Museum at so short an interval after the exhaustive exhibition at Manchester, and have, therefore, decided to work out special lines, and propose to illustrate only the following subjects :—

(1) *Irregularities Treated Mechanically.*—This subject is intended to exhaustively demonstrate the various mechanical appliances used by practitioners for obtaining symmetry of the teeth. Casts of the mouth from the commencement to the termination of the operation, together with the regulation appliances used, will be exhibited.

(2) *Exhibition of Mechanical Dentistry.*—This division is intended to demonstrate the growth and progress of the mechanical art, and specimens of dentures from the earliest period to the present day are solicited.

Sub-Section A.—The mechanical treatment of difficult and complicated cases.

Sub-Section B.—The mechanical treatment of cleft palate.

Sub-Section C.—Wrinkle and Fad Department. This will include an exhibition of tools and instruments designed and made by dentists.

THE Meeting is to be held during the first week in April, giving, therefore, only five clear months to prepare specimens. There are, we feel sure, many members of the Association who can send at least one or two specimens or cases to the Museum, and on behalf of the Committee we would ask their earnest co-operation, so that the subjects treated may be illustrated as thoroughly as possible. Under the first heading, namely, "The Mechanical Treatment of Irregularities," duplicates of the models and appliances used will be as acceptable as the originals. The Committee think that, where possible, it will be advantageous to send photographs of the patient, both before and after treatment, together with concise notes and remarks upon the case and the treatment pursued. Arrangements will be made for selected cases to be thrown upon the screen by the lantern. Further arrangements will be duly noted in the Journal, but in the meanwhile members should communicate with the hon. sec., Mr. F. M. Richards, 27, Paradise Street, Birmingham, as to the lines they may be willing to help in, and for any information they may wish to have.

THERE is, as in previous years, to be a Microscopical Exhibition. This always forms one of the most valuable and interesting parts of our Annual Meetings. The subjects for which specimens are solicited are (1) Development of the Teeth; (2) The Various Dental Structures; (3) Pathological Conditions of the Dental Tissues. Photo-micrographs illustrative of the subjects will be acceptable, and also lantern slides, it being proposed to exhibit these latter by the limelight lantern.

MR. MITCHELL ON PERSONAL DENTAL EDUCATION. — Mr. Mitchell, in the pages of the *International Dental Journal* for October, publishes a letter which he sent to us, and which he thinks that we should not, in fairness to him, have declined to insert. We did so on the ground that we did not care, after the lapse of time, to reopen a discussion on the subject. Mr. Mitchell in an article questionable as to the good taste of its subject matter, and yet more so as to its manner of expression, stated last January that "the best and most progressive students, after completing their course on this side, and having learnt all their instructors were capable of imparting to them here, seek the halls of learning in America, to secure that which they were unable to obtain

here, where the best obtainable is supposed to be within easy reach." This vague general statement was contravened by letters written by the deans of several of the principal schools in England, who, speaking from an intimate knowledge of the educational careers of those who have passed through their hands, stated that it was not so as regards their own schools. Two courses were then open to him: he might have said that he spoke honestly from a general impression, and possibly might have been mistaken, or he might have justified his statement by giving the data upon which it was founded. To such a letter we should have, of course, given all due publicity, but it is quite a different matter when, after the lapse of considerable time, he seeks to reopen the subject by statements only a degree less vague, and by the introduction of fresh matter discussed in a tone which we do not wish to emulate.

If Mr. Mitchell's communication had furnished us with the names of the gentlemen to whom he alluded, the names of the schools whence they came, and to which they went, or other information sufficiently exact to have any cogency, neither the lapse of time nor even the amenities of his style would have been a bar to the publication of his letter.

SCHOOL INVESTIGATION COMMITTEE.—On behalf of our Association, Mr. Denison Pedley has examined the Sutton Schools, and has, at their request, furnished them with a report bearing upon the results of his investigation. Out of the 1985 children examined there are only 527 sound dentitions, and no less than 1173 of the permanent teeth require filling, in addition to 513 which require extraction. We hope that the outcome of the report will result in the appointment of a Dental Surgeon.

CASES IN PRACTICE.—In last month's issue we referred to a case of death from swallowing an artificial tooth, and on another page we publish the notes of this case. The plate, a small one, carrying only an upper central incisor, became immovably fixed in the upper part of the œsophagus, so that it became necessary for Mr. Symonds to perform œsophagotomy. The patient did fairly well for the first day after the operation, with the exception that she suffered from severe retching, but unfortunately, death occurred on the third day. Under the same heading will be found an interesting case of closure of the jaws due to a

gumma on the masseter muscle, which was successfully treated by the administration of the usual syphilitic remedies.

ADVERTISEMENTS OF DISSOLUTION OF PARTNERSHIP.—We copy the following from the columns of the *British Medical Journal* :—

“*Puzzled*.—In reply to our correspondent's three distinct questions, we note that advertising in the local lay papers and issuing printed circulars notifying their individual intention to practise in F., both No. 1 and No. 2 have committed a grave breach of medical etiquette. Nor will the plea that it was done under the advice of their respective solicitors justify the proceeding ; the latter, if the allegation be true, could hardly fail to know that, in so advising them, they were directly contravening the rules of the legal and an allied profession.”

DINNER TO SIR WALTER FOSTER.—On Wednesday, October 26th, a dinner was given by the British Medical Association to Sir Walter Foster, M.P., M.D., F.R.C.P., for the purpose of congratulating him on his appointment as Parliamentary Secretary to the Local Government Board. The dinner was not only well attended; but was also entirely devoid of any party manifestation. The President of the Council of the Association, Dr. Withers Moore, presided, and in well-chosen terms proposed the health of the “Guest of the Evening.” To this Sir Walter Foster made a felicitous reply. Mr. Ernest Hart, in an important speech, proposed the health of Mr. Fowler. In the course of his remarks he referred to his good qualities as Chairman of the Parliamentary Bills Committee, and his intimacy with all political measures having special interest for the medical profession. Mr. Fowler's reply, statesman-like in character, brought prominently forward the fact that as head of the Department he possessed great tact and knowledge, and his tribute to the “permanent staff” was in as good taste as it is well deserved. Sir Richard Quain, M.D., F.R.S., was happy in the choice of the words he used to propose the health of the British Medical Association, as was also Mr. Joseph White, F.R.C.S., the President of the British Medical Association, in his reply. “The Guests,” proposed by Sir George Murray, and responded to by Mr. Hullin, Chairman of the County Council, and Sir Hugh Owen, Permanent Secretary of the Local Government Board, brought the toast list to an end. The evening was a great success, but considering

Sir Walter's services to the dentists' interest on the General Medical Council, more than two dentists should have attended to testify to their appreciation of his services.

THE ANNUAL DINNER OF THE DENTAL HOSPITAL OF LONDON.

—The Annual Dinner of the Past and Present Students of the Dental Hospital of London, will be held on Saturday, December 3rd, at the Café Royal, Regent Street. Sir Richard Quain, F.R.S., M.D., is to preside. The staff of the Hospital is anxious that there may be a large gathering to do honour to the Chairman who is thus showing his sympathy with our profession. The Representative Board of the British Dental Association will meet on the afternoon of the same day, and the Odontological Society on the following Monday, the dinner being fixed for Saturday, in order that gentlemen attending either of these meetings may, should they so desire, be present. Old students will no doubt be glad to show Sir Richard their appreciation of his kindness not only in presiding on this occasion, but also for having become Consulting Physician to the Hospital. Gentlemen wishing to be present should communicate with the Dean of the School immediately.

EDINBURGH DENTAL HOSPITAL.—Few institutions can have undergone, in so short a time, so many vicissitudes as the Edinburgh Dental Hospital, fewer still could have come out of them so successfully. As early as 1850 the necessity of an institution for the relief of dental suffering had made itself felt in Edinburgh, and as a result a special dispensary was established in 1857, a special dental department was added to the Royal Dispensary, and this latter may be regarded as the origin of the Edinburgh Dental Hospital. In 1860, the Edinburgh Dental Dispensary was opened in Drummond Street, but owing to want of additional accommodation was removed in 1861 to Cockburn Street. It was not, however, destined to remain here long, since in 1864, larger premises in the same street had to be obtained. In these latter it remained until 1878, when it was taken to Chambers Street. In 1889, another shift took place, this time to Lauriston Lane; and now, through arrangements being made by the Managers of the Royal Infirmary, it seems more than probable that the Hospital will have again to find another habitation. The Directors of the Hospital have now decided to secure

premises of their own, and have already more than one site in view, although they have not, at present, definitely fixed upon any one. The idea is, naturally, to secure one as near as possible to the building of which they are now only tenants. For the completion of the undertaking about £10,000 is required, and towards this already £1000 is subscribed.

SOME time since, the National Dental Hospital admitted ladies to the course of instruction in their hospital, and we now notice that at the Edinburgh Dental Hospital, a lady is undergoing the practical and clinical training afforded by that School, with the object of gaining the L.D.S. Diploma. In referring to the subject, an Edinburgh newspaper states that "the profession itself is highly suitable for women; certainly for them it has many advantages over medicine; there is much less strain upon the physique, and a total absence of the incessant movement and worry inseparable from the medical profession." With this statement we cannot quite agree; and we think it open to question whether many women could stand the daily strain entailed upon a practising dental surgeon; still further, they do not seem fitted to go through the training in the workroom which is so requisite for the success of the practitioner.

THE DENTAL ASSOCIATION OF QUEBEC.—Our Canadian brethren do not seem to be backward in the onward march of dental progress, and the account recently received of the last meeting of the above Society, recently held at Montreal, must be most encouraging to its members. The report not only shows the financial condition as being the most favourable since its formation, but also that energetic steps are being taken to eradicate advertising, and at the meeting a special motion was carried to the effect "That this meeting representing the dental profession of the province, express its disapprobation of all unprofessional methods of advertising, which not only in themselves savour of quackery, but are resorted to for the purpose of imposing upon the unsuspecting public by false representations." As far as can be gleaned from the report, "It was not intended to prevent modest and reasonable advertising, should one wish to do so;" but we think that from the professional standpoint it would be best for the Association to discountenance advertising in any shape or form. It is also interesting to notice that it is now necessary for

any person in future wishing to study dentistry, to pass the matriculation for admittance to the study of medicine, and, still further, to attend the required lectures in anatomy, physiology, and chemistry, these being given at the McGill and Laval Universities, the one being French and the other English.

PERHAPS the most interesting feature of the meeting was the settlement of the final arrangement for the foundation of the Dental College, the first of its kind in the province. An efficient staff has been obtained, with Mr. W. G. Beers as Dean, and Messrs. Bowdoin and Berwick respectively Registrar and Treasurer. The lectures on special dental subjects, like those upon general ones, are to be delivered in French and English, thus necessitating a double list of lecturers. The electric light is to be introduced into the premises which are to be utilised by the College, and already the necessities for the operating and mechanical rooms have been supplied by Drs. Lovejoy and M'Diarmid. The clinical instruction of the students is to be carried out by a staff numbering already over twenty. Everything in the account received points to the fact that nothing has been left undone to make the new departure a success, and we only hope that it may be our pleasure to record from time to time its steady progress.

STUDENTS' SOCIETY DENTAL HOSPITAL OF LONDON.—The above Society held its first meeting of the winter session on Monday, October 10th, Mr. E. Preedy, the Vice-President, occupying the chair. The librarian announced that the Society had been enriched through the presentation by Mr. Willis of a number of past journals of the British Dental Association. Casual communications were reported by Messrs. Dolamore and Clarence, the latter gentleman showing a sequestrum which had been taken from the lower jaw of a man *æt.* 49, the cause of the necrosis being fracture during extraction by "the key." A paper upon "The different fillings used in the mouth" was read by Mr. D. P. Gabell, the writer treating the subject from a practical point of view, giving careful analyses of various forms of filling materials in general use, and also discussing their relative value, with special regard to their wearing capabilities, typical situations for use, and effects upon the teeth. The paper elicited a lively and valuable discussion, principally upon the subject of amalgam fillings, and

to the various queries Mr. Gabell replied. At the next meeting of the Society Mr. R. W. Gillett will read a paper upon "Points in Extraction."

DENTAL HOSPITAL OF LONDON ATHLETIC CLUB.—The Annual General Meeting of the above club was held on Wednesday, October 26th, in the theatre of the hospital. In the absence of the President, Sir Edwin Saunders, one of the vice-presidents, Mr. E. Lloyd Williams, occupied the chair. The Secretary's report for the past year was a very satisfactory record, while that of the Treasurer showed a balance of £58 5s. The officers for the ensuing year were voted for as follows: President, Sir Edwin Saunders. Cricket: President, Mr. Morton Smale, Capt. Mr. Q. H. Miller, Sec., Mr. Henley. Football: President, Mr. C. E. Truman, Capt., Mr. Ham, Sec., Mr. Hankey. Music: President and Conductor, Mr. E. Lloyd Williams, Sec., Mr. Pascal Taylor. General Sec., Mr. Henley, Treasurer, Mr. W. S. Pike. The election of officers for the Tennis and Swimming sections with the exception of the Presidents, viz., Mr. R. H. Woodhouse and Mr. Woodhouse Braine respectively, was postponed till the summer session. The President announced that Mr. R. H. Woodhouse had offered a Tennis prize to be played for on his lawn at Ealing. The Annual Dinner was fixed for the Tuesday following the 1st Monday in March, the day after the meeting of the Odontological Society, when the chair will be occupied by Mr. R. H. Woodhouse. A vote of thanks to Messrs. Ash & Sons for their presentation of cricket and tennis bats, and to Mr. E. Lloyd Williams, for his kindness in taking the chair, brought the meeting to a termination.

PROPOSED DENTAL HOSPITAL AT SHEFFIELD.—It seems quite possible that one of the outcomes of Mr. Harrison's paper on "Dentistry in Sheffield," read at the last meeting of the Midland Counties Branch, will be the formation of a Dental School in connection with the Sheffield Medical School and General Hospital. Sheffield has a population of 320,000, and it is somewhat pitiful to think that there is no Dental Hospital where the modern treatment of the teeth can be available to the poor. According to the *Sheffield Independence*, there are only three dental appointments to charitable institutions, and that at the General Hospital, where a large number of dental operations are

performed, the staff does not include amongst its numbers a qualified dental surgeon. The paper evoked a hearty discussion from both local and visiting members, and we hope to hear in the near future that the proposal is actually an accomplished fact.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the October sittings of the Examiners the following gentlemen having passed the required examinations were admitted Licentiates in Dental Surgery :—David Paton Boyd, Glasgow ; Alfred Thomas Burt, London ; John Mathieson Macmillan, Glasgow. Three candidates were referred.

WE announce with regret the retirement of Mr. A. J. Woodhouse from the post of Dental Surgeon to the Foundling Hospital, the duties of which office he has most faithfully discharged for over forty years. We are glad, however, to see that the Hospital will not altogether lose the benefit of his valuable services and great experience, for he still remains on the staff as Consulting Dental Surgeon. The appointment of Dental Surgeon to this Hospital is one of the most valuable for affording observation into the diseases of teeth in children.

THE next meeting of the Odontological Society will be held on Monday, Dec. 5th, when a paper on "Inflammation in Bone" will be read by Dr. Sims Woodhead. There will also be a casual communication upon "A Case of Adhesion between Fangs of two Upper Molars, with extraction of them simultaneously."

ROYAL COLLEGE OF SURGEONS, ENGLAND.—Mr. H. G. Howse, F.R.C.S., has been elected a member of the Board of Examiners in Dental Surgery, in place of Mr. T. Bryant, F.R.C.S.

The *Journal für Zahnheilkunde* reports a case of death during the narcose from pentol, the new anæsthetic.

APPOINTMENT.

E. PREEDY, L.D.S.Eng., Honorary Dental Surgeon Foundling Hospital, *vice* A. J. Woodhouse, resigned.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

**Mr. Peter Headridge's Demonstration at the
Annual Meeting.**

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I think perhaps it may be of interest to the profession if I write a few words in explanation of the demonstration given by me at the British Dental Association meeting in Manchester, last August. The case shown was a central incisor which had the cutting edge broken off, and was decayed on each side at the gum margin, but the pulp was not in any way exposed. The broken edge of the tooth was cut square, and the sides vertical by means of a diamond disc, making a small flat area on either side, just above the gum margin. Into each of these surfaces a small vertical hole was drilled. A plate tooth was selected, and as it was rather thinner than the natural one, some Rose's "Body" was fused on the back. It was ground to fit the remains of the natural tooth; grooves were cut in the two ends which came down to the cervical edge, and small pins fused in with Rose's "Body," so that they fitted into the two holes, which had been drilled in the natural tooth. The mineral was, after fine fitting, cemented into its place with white mineral cement. The anterior surface harmonized exactly with the remains of the natural tooth. The posterior surface, after the cement had set, was finished down to correspond with the other central incisor.

I had not time to complete the latter part of the operation during the demonstration. This must be my excuse for troubling you, and taking up so much of your valuable space. The enclosed diagrams will, perhaps, more fully explain the nature of the operation.

I am, dear Sir, yours faithfully,

PETER HEADRIDGE.

1, Lime Grove, Oxford Road, Manchester,
October 1st, 1892.

Dentistry in Malta.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—On page 693 of your issue of October there is a paragraph about "Dentistry in Malta." There are one or two errors in it, which I take the liberty to correct. In the first place, the population of Malta is only 164,000, of which 7,000 consist of troops, who are attended by their own medical officers; secondly, you state that Malta lacks the benefit of a good dental practitioner. Now this is

totally wrong, as *there is an English dentist*, who has been in practice for over thirty years, besides other dentists (Maltese); thirdly, the statement which you have culled from the Scottish paper about Malta was shortly afterwards contradicted by another correspondent signing himself "Veritas"—a fact which you have entirely overlooked. Considering the small size of the island, and the fact that there are already at least three good dentists practising, it would be scarcely justifiable to lead young practitioners to believe that there is a favourable field for work in Malta.

Having lived in Malta all my life, till within the last two years, I can vouch for the truth and accuracy of the foregoing remarks.

London,

October, 1892.

Yours truly,

T. G. J.

Our Professional Status.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I was very glad to see in your last issue that "Thorough" has again raised the question of "Our Professional Status," and may tell him at the onset that I quite endorse and agree in all he says upon the matter, for it is a flagrant shame and disgrace that, after spending the best years of one's life, to say nothing of the cash involved, and acquiring the much-coveted L.D.S. diploma (which is a piece of waste paper so far as the general public are concerned), to be imposed upon by a lot of men who bring disgrace upon the profession, and who will always continue to do so, as long as the law of this country tolerates such goings on. I forget who it was who said "that a law which cannot be enforced is a bad one, therefore repeal it," but it fits our case perfectly.

On leaving the Royal College of Surgeons we are made to promise not to advertise, or do anything of an unprofessional nature, which we accept in good faith. On joining the British Dental Association the same exactions are required of us—always in the interest, and to raise the status of the profession. That is all very well; men of old standing and repute can afford to do such, the "quack" does not touch them; nor does he affect men who can afford to buy an old-established practice. But how about the rising generation? A young man who has spent his little all (and passed a far stiffer exam. than the "veterans" of the profession) in acquiring knowledge (which is weighed by the same scales as the quack's by the public), and remain content to work up a practice (an awful task), but still worse when the sinews of war are all but exhausted, and that he is debarred the only means of bringing himself before the public. Do not misunderstand me, or think that I am advocating the advertisement plan—on the contrary, I abhor it; but let us be given an equal chance with the "quack," and it can only be done in one way.

All men practising dentistry ought to be compelled either to prove that they were in practice before 1878, stating their name, be on the Register, and that they have the required knowledge; for there are hundreds of men, who no doubt are joining the ranks of the profession every year, and evade the Act by styling themselves, "The People's Dentist," "The American School of Dentistry," &c., &c., as the enclosed cutting will prove. Who is prepared to refute the idea that they may not have been hair-dressers, barbers, and tinkers (they certainly are at it) six months ago? Only a little time has elapsed since I was called upon to remove twenty-one stumps from a lady's mouth, and administered gas three times, and what was my horror a week since, to meet her in the street with a whole denture (a guinea one, no doubt).

How the dentist (*bona fide*) is protected I fail to see, except to recover fees—so is the grocer for that matter, and what the British Dental Association is doing for such as myself, or what use it is belonging to it at all, is equally difficult for me to understand. It may be very well for our descendants 100 years hence (so far all right), but in the meantime we have to live, and such is impossible as long as such "charlatanism" is allowed full scope, for it is an egregious blunder to think that we are considered one iota better by the public than the "quacks," and doctors(?) substantiate my statement by giving such men testimonials—ay, and recommend them patients, thereby joining hands with our enemies, and frustrating our only means of keeping our profession on a par with theirs, which ought certainly to be our mutual aim. "Thorough" says the "Act as it is seems a farce." I go further; I call it the "Confidence Trick;" we have to do everything it requires of us, and it can do nothing for us in return—a most one-sided arrangement, verily; and I think that all "dentists," in the strict sense of the term, ought to rise *en masse*, and never rest satisfied until they have gained the day, and brought in an Act which shall remove once and for ever the stigma that our profession has laboured under. It is a beautiful profession, and the triumph of mechanical surgery—no one can gainsay that—but was dragged in the mud by the *quack*.

I remain, yours truly,

REPEAL

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, W.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
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VOL. XIII.

The Medical Council and Covering.

THE report of the proceedings of the Medical Council which we publish, possesses some features which require special notice. Their solution regarding covering is the outcome of a prolonged course of quiet but persevering action pursued by the executive of the British Dental Association, both individually and in their official capacity, in calling the attention of the Council to this crying evil as it exists amongst registered dentists.

When some time since the Council formulated its edict against the practice of covering so prevalent amongst the general medical practitioners, the result was watched with extreme interest by our executive, and when more recently the Council took action and removed the names of certain offenders from the Medical Register as being guilty of unprofessional conduct by employing unqualified assistants, they at once pressed the Council to make similar arrangements for carrying out the spirit and provisions of the Dentists Act, and for protecting the public from being

defrauded by men who, without a qualification, practised as dentists under the name of some registered practitioner, and so imposed upon the ignorance of the public. The response made by the Council to this our recent memorial has been, we think, eminently satisfactory, and not only have they acted with praiseworthy promptitude, but profiting by previous experience, they have passed a resolution more stringent than that which referred to medical practitioners. They have also taken the responsibility of sending the resolution to every registered dentist, so that the plea of ignorance may not be set up in mitigation of the offence by anyone who may be called upon to answer before the bar of the Council for having disregarded its precept.

The ominous remarks made by Sir William Turner upon the indebtedness of the Dentists' Fund should not be disregarded by those who are perpetually calling upon the executive of the British Dental Association to thrust all our grievances before the Medical Council at once, and to maintain a perpetual system of pressure until everything is done for us that can be done. It is evident that there are many things to be considered by our executive which cannot come within the purview of those unacquainted with all the surrounding facts, and the moral of it all is that a victory injudiciously won may prove a disaster. We, however, believe that deficiency in the Dental Fund need not at present give us any serious apprehension, and we may also hope that the registrations which must follow on the recent examinations will help to replenish the depleted coffers. Besides, although our original fund has been sometimes unnecessarily drawn upon in the past, it is yet far from a state of exhaustion, and it is not in the future likely to be ruthlessly squandered.

The course which the Registrar has followed in carrying out the task undertaken by the Council is noteworthy on

account of its ingenuity and economy. It will be observed that along with the warning copy of the resolution against covering he has also sent the periodical application for the confirmation and correction of the Register. The return of the accompanying form, containing either alteration or confirmation as the case may be, will stand as an acknowledgment that the warning resolution against covering has been received, while on the other hand a persistent disregard of the application will not only entail the usual penalty, but will also tell unfavourably against anyone who may be arraigned for the offence of infringing the edict of the Council.

The infusion of new blood and other recent changes which have taken place in the Medical Council seem to have operated favourably for dental affairs, and we observe with satisfaction that the recent election reforms have given us members who not only appreciate our legitimate wants, but are ready also to take the responsibility of supplying them ; and the fact of the British Dental Association having undertaken to send out a copy of the covering resolution to every person on the Register, did not deter those who took a part in the debate from asserting that the more dignified course for the Council to pursue would be to issue direct from the Council office the warning which the Council thought necessary. As to the amount of clerical work in the office, there may be a little pressure at certain times of the year, but in a general way we cannot say that the frequent visits to the office of ourselves and others have ever disclosed any signs of inordinate industry. At all events the device of the Registrar of embodying the warning with the periodical application regarding the Register has obviated any extra work on that score, and also any extra cost beyond the printing, and for this we thank him.

ASSOCIATION INTELLIGENCE.

Representative Board.

A MEETING was held on Saturday, December 3rd, at 40, Leicester Square, F. CANTON, Esq., President, in the chair.

The following members were present :—Messrs. J. Ackery, D. Hepburn, W. Hern, S. J. Hutchinson, L. Matheson, J. H. Mummery, L. Read, J. H. Reinhardt, J. S. Turner, C. J. B. Wallis, E. Lloyd Williams, W. H. Woodruff, R. H. Woodhouse, Dr. J. Walker, and W. B. Paterson, Hon. Sec. (London), Amos Kirby (Bedford), J. J. Andrew (Belfast), A. E. Donagan (Birmingham), J. Dennant and J. H. Redman (Brighton), G. Cunningham and R. P. Lennox (Cambridge), Morgan Hughes (Croydon), J. H. Whatford (Eastbourne), W. B. Macleod (Edinburgh), J. M. Ackland (Exeter), J. A. Biggs, J. R. Brownlie and C. Rees Price (Glasgow), Caleb Williams (Leamington), G. Brunton (Leeds), W. R. Roberts (Lichfield), G. G. Campion (Manchester), I. Renshaw (Rochdale), W. E. Harding (Shrewsbury), and T. E. King (York).

The minutes of the last meeting were read and signed. Letters regretting inability to be present were read from Dr. J. Smith, Dr. Williamson, Messrs. Breward Neale, President-elect, Booth Pearsall, Morton Smale and S. Spokes.

The HON. SECRETARY reported the recent action of the General Medical Council in relation to the practice of "covering," and drew attention to the stringency of the terms of the resolution of the Medical Council, passed November 24th, 1892 :—

"Any registered dentist practising for gain, who knowingly and wilfully deposes a person not registered or qualified to be registered under the Dentists Act to treat professionally on his behalf in any matter requiring professional discretion or skill any person requiring operations in dentistry of a surgical character, will be liable to be dealt with by the General Medical Council, as having been guilty of infamous or disgraceful conduct in a professional respect, and to have his name erased from the Dentists' Register."

Mr. TURNER proposed and Mr. BROWNLIE seconded that the resolution of the Council be entered upon the minutes, which was agreed to.

The TREASURER reported upon the Association's balance at the bank, and upon such members as were in arrear with their subscriptions.

Mr. J. W. Butcher was re-appointed auditor of the Association's accounts.

The election of members to the Business, Journal and Finance Committees was then proceeded with.

Mr. DONAGAN, as Hon. Sec. of the Central Counties Branch, read

a preliminary report of the arrangements for the Annual Meeting to be held next year at Birmingham, and amongst those of a social character mentioned that the President and members of the Branch proposed to entertain the members of the Association on the Wednesday evening, viz., that previous to the Meeting. The Mayor of Birmingham occupying Thursday evening with a reception at the Town Hall. The Annual Dinner would take place on the Friday evening of the Meeting, and on Saturday afternoon the President-elect, Mr. Breward Neale, would entertain the members. Various places of interest, of a manufacturing character and otherwise, in Birmingham, would be thrown open to visitors. It was suggested that some alteration might be made in the time for the holding of demonstrations, as it was anticipated that the number of such demonstrations might be increased.

On this point Mr. Kirby put in a plea for an extra day for the Meeting, and Messrs. Turner, Brunton, and Roberts spoke of the value of papers in addition to demonstrations at Annual Meetings. In reference to the date of the Meeting, it was pointed out by Mr. Donagan that it was impossible, for various local reasons, to select any other days in April than the 6th, 7th, and 8th.

The PRESIDENT, upon the motion of Mr. Woodruff, seconded by Mr. Read, put it to the meeting that April 6th, 7th and 8th, 1893, be the dates of the next Annual Meeting, and it was agreed to.

A letter was read from Mr. Mummery requesting an opinion from the Board as to the advisability of establishing at the next Annual Meeting a sectional meeting for the purpose of discussing subjects of microscopical interest. It was suggested that a President and Secretary of such section might be appointed, and that in addition to an opening address, papers might be read and illustrated by lantern slides, &c.

A discussion followed, in which Messrs. Andrew, Campion, Cunningham, Harding, Mummery, Paterson, and Lloyd Williams took part, and it was agreed to try the experiment at the next Annual Meeting in such form that it should not definitely pledge the Board upon the whole question of the establishment of sectional meetings in general.

A proposal from the Schools Committee to draw up a report of all the work done by that Committee down to the date of the Annual Meeting, 1893, in a simple form that should render it useful for distribution amongst the members of the medical profession and general public, was, upon the motion of Mr. BRUNTON, seconded by Mr. KING, agreed to, on the understanding that the report should first be presented to the Board for its approval.

In answer to Mr. Ackland, the PRESIDENT explained that such work came within the province of the Association.

Mr. CUNNINGHAM introduced for the consideration of the Board, a proposal to empower the Schools Committee to approach the Local

Government Board immediately on the question of the appointment of dental surgeons to schools under the authority of the Local Government Board. He considered the present time a favourable one for approaching the Local Government Board on such a subject—a subject which the Schools Committee, by taking a census of the teeth of children in pauper and national schools, had made a suitable one for the consideration of the Local Government Board, inasmuch as it showed the need for proper dental attention at the hands of competent men; and with a recognition of that need at headquarters, it would follow that some well-defined scheme would be required in order that the methods of examination, work, and salaries of dental officers who might be appointed should be harmoniously arranged upon a sound and equal basis of uniformity. He pointed out that the Local Government Board already concerned itself largely in the work of the medical profession as far as sanitation and preventive medicine was concerned, and he hoped the time was not far distant when the public work of the dental profession would be similarly recognised. He suggested a deputation waiting upon the Local Government Board.

Mr. MACLEOD suggested waiting until the report of the work done by the Schools Committee was ready for presentation to the Association.

Mr. TURNER agreed that the moment was favourable for approaching the Local Government Board, but doubted whether it was equally so from the Association's point of view. For there was but little evidence forthcoming at that moment which showed any weighty reason for an approach being made as suggested. He considered the matter therefore premature.

Upon the PRESIDENT putting the motion which had been proposed and seconded, Mr. MACLEOD proposed as an amendment "That the consideration of the matter be postponed until the report of the Schools Committee had been received and approved of by this Board."

Mr. REES PRICE seconded. The amendment was carried.

Other formal business was transacted and the proceedings terminated.

NOTICE.

Papers at the Annual General Meeting.

April 6th, 7th, 8th, 1893.

THE Honorary Secretary will be glad to hear, at their earliest convenience, from Members of the Association who propose to read papers at the meeting. Communications should be addressed to him at 40, Leicester Square, London.

Central Counties Branch.

A MEETING of the Council, followed by an ordinary meeting of members of the above branch, was held at the Dental Hospital, Birmingham, on Thursday evening, October 27th, at 6 o'clock. About twenty members and friends assembled at tea, while forty were afterwards present at the meeting, including Messrs. W. R. Roberts, President, in the chair (Lichfield), H. N. Grove (Walsall), W. E. Harding (Shrewsbury), Wm. Geekie (Oxford), E. A. Vickery (Coventry), R. Owen (Wolverhampton), J. Mountford, Chas. Sims, F. C. B. Cave, Breward Neale, Wm. Palethorpe, F. E. Huxley, J. E. Parrott, J. Humphreys, J. W. Turner, C. Hodson, W. G. Owen, F. H. Goffe, P. T. Naden, W. T. Madin, A. Jenkins, F. W. Hands, T. St. Johnstone, S. Fisher, and A. E. Donagan (hon. sec.), and Drs. F. Marsh, S. T. Short, and S. Haynes (Birmingham). Owing to the inclemency of the weather several of the members from a distance were unable to be present.

The minutes of the last meeting were received. The Secretary announced that the Council had elected Messrs. W. T. Madin and Clarence Hodson as members of the British Dental Association and of the Central Counties Branch; Messrs. Wm. Geekie, Martin Sherwood, and F. C. Porter as members of the branch; also Mr. T. St. Johnstone as a student-associate.

The Treasurer's report, which proved to be of a satisfactory character, was read and adopted. The collection on behalf of the Benevolent Fund amounted to the sum of £1 3s.

An instructive paper was read by Mr. J. Mountford entitled, "A Method of Root Filling." The paper gave rise to an animated discussion.

Dr. FRANK MARSH, Physician to the Queen's Hospital, Birmingham, read some interesting "Notes on a few rare Surgical Affections of the Mouth." He exhibited a patient from whom the half of the lower jaw had been removed, and asked the opinion of the meeting about the practicability of a denture being made to rectify the deformity caused by the operation; he also showed a patient suffering from necrosis of the lower jaw, in which the condyle and greater part of the ramus had been thrown off.

Dr. SIDNEY SHORT related a rare case of recovery from cancrum oris.

Mr. E. A. VICKERY handed round a vulcanite upper denture, the palatal surface of which was lined with gold, and explained the method of making it. The plate was made for a patient who had previously worn a vulcanite denture, which caused considerable inflammation of the gums and palate, but which was completely cured by the gold-lined piece.

A hearty vote of thanks to those contributing to the success of the meeting brought the proceedings to a close.

The next meeting will take place on January 19th, 1893. It is requested that members who are willing to contribute any matter will give the Hon. Sec. early intimation of the titles of their papers or communications.

Midland Branch.

THE autumnal meeting of the members of the Midland Branch was held in the Medical School, Leopold Street, Sheffield, on Saturday, October 29th, W. E. HARDING, President, in the chair.

Present: Messrs. G. Brunton (Leeds); W. R. Birkett (Warrington); W. Broughton (Eccles); G. G. Champion (Manchester); J. H. Carter (Leeds); T. Coysh (Liverpool); Arthur Cocker (Halifax); L. H. Drabble, R. C. H. Drabble (Sheffield); W. Dougan (Manchester); F. Dale (Sheffield); W. E. Harding (Shrewsbury); Joseph Harrison, Frank Harrison, G. F. Hall (Sheffield); W. Headridge, D. Headridge, Edwin Houghton (Manchester); J. H. James (Sheffield); J. H. Jones (Sale); T. E. King (York); E. J. Ladmore (Bradford); P. A. Linnell (Manchester); G. H. Lodge (Rotherham); J. N. Manton (Wakefield); A. Alex. Matthews (Bradford); S. Mitchell (Dewsbury); G. H. Osborne (York); T. Peacock (Sheffield); I. Renshaw (Rochdale); A. G. Rayner (York); J. Spotswood, Charles Stokes, W. B. Tolput (Sheffield); W. H. Waite (Liverpool); G. W. Wood (Retford); and others, including several Sheffield medical practitioners.

The PRESIDENT called upon Mr. J. C. Storey for his paper on "The Past, Present and Future Training for Prosthetic Dental Work" (which appeared as an Original Communication in our last number).

The discussion which ensued was opened by Mr. BRUNTON, who said: At a meeting in Birmingham some years ago Mr. Macleod, of Edinburgh, said to me "Can you tell me where I can find a good assistant?" I looked at him, thinking that he was joking, as Edinburgh used formerly to supply the whole country—nay, Europe, almost—with dental mechanical assistants; but he assured me that it was a fact that he was in want of one and did not know where to find him. It was this which first set me thinking about the supply and demand of mechanical assistants, and since then Mr. Cunningham of Cambridge has elaborated a scheme for starting an institute of dental technology, and I think his scheme is well worthy of our attention. Mr. Storey has touched lightly upon it and given a rough outline of what is proposed, and I think that if our members would make themselves acquainted with the scheme of Mr. Cunningham, and help it in any way they can, either by suggestion or monetary help, it would assist us over the difficulty at present existing, and which will increase as years go

on—the possibility of obtaining adequate mechanical help. Busy practitioners know very well that when they take a pupil or apprentice they cannot possibly give him the help and education which they ought to do ; the consequence is, the education of the pupil or apprentice is left very much to the elder assistant in the workroom ; and there ought to be, to my mind, some means other than the mere technical education. The constructive ability which is required in the workroom is considerable, and any scheme which will help forward a movement for the efficient supply of good mechanical assistance will have my support, and I am sure that of you all.

Mr. G. G. CAMPION (Manchester) remarked that Mr. Storey divided his paper into three parts, and treated of the past, present, and future training for prosthetic dental work. The past had, of course, only an historic interest. With the present and future they were concerned practically, and therefore it was a most important subject for their consideration. He thought they would all agree with Mr. Storey that the present conditions under which the training in prosthetic dentistry was carried on were eminently unsatisfactory, and it was undoubtedly necessary to consider in what way, and by what means, they might be improved. Mr. Storey had sketched a course of training which he thought would be very desirable—a course similar to that put forward by Mr. Cunningham in the scheme for a technological institute which Mr. Storey was alluding to. Many people would disagree with Mr. Storey in the particular and minute arrangement which he outlined, and would perhaps think that some of the things he advocated were unnecessary, but nevertheless all would agree that some course of study was desirable which would be better than the apprenticeship system as it was at present worked. The apprenticeship unquestionably afforded a most valuable course of training when it was thoroughly carried out, but too often it was allowed to become a mere farce. The question then arose, “How to make it a reality, or how to make any alternative scheme compulsory?” It was one thing to draw up a perfectly good scheme of instruction, and quite another to make it compulsory on all dental students. It was easy to draft educational schemes, but how many students would avail themselves of it unless they were obliged to do so? Nowadays the course of study in almost all professions, whether that of the law, medicine or any other, was regulated almost solely by examinations, and it seemed to him that it was from that point that they must approach the subject if they wished to do any good.

Only a year or two ago the College of Surgeons in England started examinations in the actual work of mechanical dentistry, and he thought there could be no doubt but that that examination distinctly strengthened the dental diploma. This institution of examinations was a step in the right direction, because the moment men knew that they had to face an examination, then, and then only, would they begin to

work as they should. Making them serve a certain length of time did not necessarily mean compelling them to do the work, and, as Mr. Storey had pointed out, many practitioners had not time personally to devote to their pupils, so it seemed to him that the only way of making some impression in this direction was to try to get this examination improved. The examination in mechanical dentistry, he thought, should be held, not as now, viz., as part of the entire examination, but as a separate one altogether. It would be better for the student to pass the examination in mechanical dentistry immediately after having completed his apprenticeship and before entering the Medical and Dental Schools, because the examination would then depend entirely on that one subject, and men who failed in showing the necessary knowledge and skill would at once be referred back to these studies before they were allowed to proceed further. It was a point which might easily be realised, and one which would materially improve the present condition of things. Mr. Campion then referred to the new regulations of the Royal College of Surgeons in Ireland with regard to the mechanical apprenticeship, and expressed a hope that steps would be taken with regard to the enforcement of this portion of the curriculum. With regard to the particulars of Mr. Storey's paper, he thought it was impossible to criticise them in detail, and it was also impossible to criticise them deeply without further opportunity of studying them. He thought they ought to tender their thanks and congratulations to Mr. Storey for the way in which he had treated the subject.

Mr. W. HEADRIDGE (Manchester) : I may say that I have listened with interest to the paper which has been presented to us this evening. I would have liked it to have been longer and more in detail. The past is, of course, a marvellous picture. The mechanical dentistry of the past has not been at all superseded by the present, nor does there appear to be any requirements in the present that there were in the past. The course that students were put through in the past seems to me to have been wholly mechanical, and this was followed up by their becoming useful members to the general practice in life. To my mind it is very questionable whether the course of training now adopted is calculated to produce better results than have been produced in the past. We have had some very estimable men—men who have held the lead in the profession, and who have themselves worked from the early course up to the higher—but until a proper scheme is laid down for students to pass through, and until it can be shown that the reward for that student after he has attained such knowledge can be realised, I do not see where you will get the clever men that you want in mechanical training. The reward for the student at the present time is so pitiful that it is difficult to my mind to see where you are to get them to follow closely in the required study as you anticipate. However, if such a course can be worked out success-

fully I shall be pleased to support it and see it carried forward, for there is a great lack of properly-trained mechanical students for the mechanical work of the present day, and I can support Mr. Storey in his paper that some scheme will have to be thought and worked out carefully to produce better results than we have at the present time, and I hope the College of Surgeons will see their way to strongly support all such schemes.

Mr. E. HOUGHTON (Manchester): Mr. Storey has mentioned the want we all feel of thoroughly qualified assistants. I should like to suggest that in connection with our hospitals, courses of lectures should be given on mechanical dentistry, to which pupils and apprentices should be admitted. I do not mean simply the pupils who are intending to get their diplomas, but apprentices in the workroom, and to these apprentices a certificate should be granted by the Dental Hospital that they are qualified to do the work they profess to do. I think that by a scheme such as this we should raise a class of men well qualified to help us in the workroom.

The PRESIDENT: I have been pleased with the paper read by Mr. Storey. There is no doubt that the training of the majority of our apprentices is too much haphazard. The idea of the student being obliged to attend some technical school of engineering is in itself admirable. The advantages, too, of modelling in clay and of drawing cannot be over-estimated. Many of our students—and, indeed, of our mechanics—are lacking in artistic aptitude. They seem to have an idea that that they should all work in a given mode, as if they were cast-iron articles turned out of one mould all alike. They lack that artistic sense that will enable them to produce true and natural reproduction in our prosthetic work. Another point touched upon by Mr. Storey is the difficulty of getting the right sort of youth. There are many of them nowadays who start in life with the idea that they are going to be taught, not that they have to learn. I think in the old days, before there were the advantages of education at present existing, the youth who wanted to get on had to get his information and skill by real downright hard work. It was then truly "the survival of the fittest." Nowadays he supposes he is to be taught everything, and to be turned out duly qualified without any labour or trouble on his part. If the school of dental technology is carried into effect I have no doubt but that under proper management and proper restrictions it would be a very valuable institution, but before we rush into it I think that there are many points which require very careful consideration. Whether it should entirely replace the training of the workroom of the private practitioner is a very grave question. I think myself it is better to attend an ordinary technical school at the same time that he is undergoing his three years' course with a practitioner than his attending the school only. It is a question as to whether the school of dental technology will not be liable to get into a given groove, which

would be deplorable. It is, as I before said, a thing to be thought and worked out in the future.

Mr. FRANK HARRISON then read a paper entitled "Dentistry in Sheffield" (which will appear in our next issue), at the conclusion of which the following discussion took place.

The PRESIDENT (Mr. W. E. Harding): We have heard Mr. Harrison's paper. He speaks of its local aspect; I think you will agree with me it has more than a local aspect—it has a national aspect. It is a subject that is pressing its attention on the dental profession, and also upon the public, how to deal with the alarming amount of dental disease and trouble in our hospitals. That it can be done by the honorary dentist to a hospital I think is generally acknowledged to be impossible. I can speak with some little experience myself, as I have held the appointment of honorary dentist to our Infirmary for seventeen years, and during that time I have seen on an average six to seven hundred patients a year, and during that time I have not been able to do a thousandth part of the amount of conservative work that should have been done. Indeed, if I spent every day of the week at the Infirmary, working from morning to night, I should hardly be able to cope with it. A patient will perhaps come with an aching tooth, a tooth which is far beyond anything like simple treatment, and which one in private practice would at once remove, yet the same mouth presents such an alarming amount of decay that is amenable to permanent treatment had one the time to deal with it—a mouth that one would put in good, useful, and permanent repair in private practice, but which it is impossible for the honorary dentist to attend to. Each case would perhaps require an hour's attention, and when one has to deal with from twenty to five-and-twenty patients, each of which would need several sittings of from half-an-hour to an hour, and the following week these are replaced by as many more, it is apparent to any one's observation that it is impossible for an honorary dentist to cope with it. How then is it to be dealt with? It appears to me that there are but two ways of doing it. The one is the appointment of a paid official, the same as you appoint a house surgeon—a paid dentist who shall attend to the hospital work only, and to be paid adequately to treat dental cases. If you do not do this the only alternative is a dental school. I fail to see any other way of dealing with it, and it is a question which will have to be dealt with. The question of the establishing of a dental school has two aspects, the one from the students' point of view, and the other from the patients' point of view. I think it is a questionable point as to whether the multiplication of small schools at different centres is a good idea from the students' point of view. I rather prefer, myself, to see large schools that will and can afford to remunerate demonstrators and teachers who wish to devote their time to teaching them as students. A small school cannot afford to do this. From

the patients' point of view I think it is the best course to follow. Living as I do in a country district, where the population are agricultural labourers with their wives and children, I see this want pressing to the front very much.

Mr. DRABBLE (Sheffield) : I am fully in sympathy with what our President has said with regard to the want of something being done for the public in dental matters, for it is somewhat appalling the large amount of dental disease that exists even in the mouths of the apparently healthy. I cannot go into details, but I feel sure that if we could do something in Sheffield to deal with this matter, especially for the poor, it would be a grand thing indeed. I know that there is a feeling on the part of the medical men to recognise this need, and I hope something will be done that will take the form of a hospital or something of that kind, and I feel sure that the dentists of the town will boldly support Mr. Harrison in the suggestion he has made.

Mr. BRUNTON (Leeds) : The first word I would offer is one of congratulation to the Sheffield practitioners in the effort they are making for an affiliation with the medical school or the establishment of a dental hospital. Whilst Mr. Harrison was reading his paper the thought struck me that he might have included something else in connection with his proposed dental department or dental school. He might have thrown out the suggestion that students of surgery and medicine might be admitted to the classes and might receive very valuable instruction in dental operations. I think a dental department would not only be beneficial to our rising dentists themselves, but to those of the medical profession.

Mr. STOKES (Sheffield) : We all know the amount of work Mr. Harrison has done with reference to the forming of a dental hospital, and we all recognise the want of one in Sheffield. In looking over the different towns in England, I find that Sheffield is one by itself with so large a population and without a dental hospital. I think it is a disgrace that where we have such an excellent medical school, and such dental cases as occur at our hospitals and infirmary, no practical man should be in attendance on these poor people, and I think it shows the necessity and want of such an institution in Sheffield as Mr. Harrison suggests. I think it would be a grand assistance, not only to the medical school, but a nucleus of grand return to both. I have great pleasure in supporting the suggestion of Mr. Frank Harrison, and would call attention to the fact that we have present some of the leading men in connection with these institutions, who I *have no doubt are noticing what is being said*.

The PRESIDENT here invited the members of the medical profession to take part in the discussion.

Dr. FAVELL (Sheffield) : I believe my brethren who are in attendance came here to-night to hear what was being said with reference to Mr. Harrison's scheme for the formation of a dental hospital. We

knew he had this scheme in his head and that it had not been elaborated exactly, and I think we all came with the idea of hearing the opinion of a dentist who has been connected with and who knows something of the work of the general hospitals as to the best means of carrying out the suggestion he has thrown out. I rather gather from what has fallen from the different speakers and from Mr. Harrison's paper, the question arises as to whether the best plan of teaching dentistry would be to have a separate dental hospital properly endowed or kept alive by subscription, or whether it would be better to appoint dental surgeons to a general hospital, who shall there teach dentistry, while the dental pupils shall attend lectures, &c., in a recognised medical school. Well, one plan involves outlay and expense; the other can, I think, be done without that expense. One sees that there may perhaps be some difficulty in a town like Sheffield, where we have two recognised hospitals, as to where the teaching should be done. If at both, it would involve as it were separate establishments at each hospital, separate instruments, appliances, &c. which would be costly. The appointment to but one of the hospitals of a dentist would save much expense, and the course suggested would be a good one. I am sure that so far as I am concerned—and I think I may say the same for my brethren—we shall be only too glad to give every assistance we can, and shall throw no obstacle in the way of the establishment of a dental surgeon at the hospital. I can quite see that if well conducted and properly organised, it will be an advantage to the general hospital, because, as has been pointed out, many surgical ailments are very much on the line of dentistry, various diseases of the jaw, such as tumours, &c., arise in which very much mechanical skill is often needed, as also in the treatment of fractured jaw. The appointment would be of advantage to the hospital and also to the medical school, as if dental pupils came to Sheffield to learn dentistry our school would increase thereby. I do not think that so far as the medical profession is concerned, we shall throw any obstacle in your way, but will, I hope, do all we can to help forward a properly elaborated scheme. I believe I can speak for my colleagues, and I say we should welcome a well-thought-out and proper scheme for teaching in Sheffield.

Mr. G. G. CAMPION (Manchester): I am sure we shall all have heard with pleasure the words of the last speaker. Dr. Favell referred to the question as to whether it was best to establish a new institution or a department of the general hospital, and being connected with the Dental Hospital at Manchester as one of the staff of that institution almost since its formation, I may perhaps be allowed to give an opinion. I think it will be seen that I speak without prejudice when I say that the opinion I have formed after a number of years' practice at that institution is a very decided one, and an opinion decidedly favourable to the establishing of a dental department of a

general hospital rather than a special hospital. It has been pointed out by Mr. Harrison and by the last speaker that the expense would be very much less, and that is so ; but there is one point that has not been made clear, although it was alluded to by Mr. Stokes, and that is this—that it is very difficult to get prominent townsmen living in the city to support a small institution of this kind, which for so many years can make no reputation for itself. I believe, sir, that the advantage which would accrue from this solution of the question is not simply a financial one. I believe that the bringing together of dental and medical men, as would be done by the establishment of a dental department of the general hospital, would be an incalculable moral benefit in addition to the monetary one, because I am sure that the more dentists and medical men mix in each other's society, the more will medical men see what we want to do, and what we are trying to do—to raise the status of our profession as they have done theirs during the past half century. I believe that would be one very great advantage of a dental department of a general hospital.

Dr. PYE SMITH (Sheffield): I think the medical profession will agree with what has been said as to how we should receive this scheme. The question laid before us has many aspects. There is the question of the school and the question of the hospital, and I quite agree with the proposition that they should be combined. They are to a certain extent separate questions. The one with regard to the school is a very important one on account of the rising members of the profession and of the health of the public. It is very important that the teaching of the school should be established, and Sheffield seems to be a centre which would be extremely well adapted to it. As far as that is concerned, I think the medical school here with the Firth College would be properly equipped, to take the matter up, and to them the first application should perhaps be made. It seems to me that it would not do to establish a school without the practical teaching facilities which may be had at either hospitals or departments of hospitals. Then there is the other aspect—the duty which we and dentists owe to the suffering poor. Undoubtedly enormous numbers come to the hospitals, and receive such treatment as they can get—perhaps rough and ready sometimes for their dental needs. Of course, we do not carry out much conservative dentistry—in short, none as regards teeth stopping, &c. In the interests of the poor, I think it is due to them that a department should be established. It seems to me that if the medical schools will show themselves favourable to the establishment of a dental school, or rather to having dental students at their school, which seem much more economical, then the other question will resolve itself into the question as to whether our existing hospitals like to have dental departments properly equipped or not, and I think that if the matter were brought before the Board of—at all events—the two large hospitals, they would be very glad to go to the comparatively

small expense of equipping a department, and I think you would have no difficulty in finding candidates with diplomas who would be willing to do honorary work.

There is a scheme on hand for the rebuilding of a portion of the Public Hospital, and probably if the board of that institution were willing to have a special dental department it would be easy enough to arrange in the building for their proper accommodation. In regard to the infirmary, which is also unlimited, I think as they have always shown themselves ready, and they have plenty of room, there is no reason to suppose but that they would be willing to do likewise. I should be extremely glad to see the town of Sheffield in possession of an efficient Dental School and Hospital, as it would be of very great value to the poor of the town.

After some little discussion the following was proposed and carried unanimously :—

“Resolved, that in view of the urgent need of more effective treatment of the teeth of the poorer classes, it is desirable that provision for such treatment should be made in all large centres of population, and that this meeting of the Midland Branch of the British Dental Association hears with the utmost satisfaction the suggested formation of a Dental School in connection with the Sheffield Medical School and General Hospital, inasmuch as this would necessarily supply such treatment in this locality.”

At the conclusion of the discussion Mr. R. C. H. DRABBLE (Sheffield) showed the models of two regulation cases before and after treatment.

Immediately preceding the meeting the members were entertained at tea at the Albany Hotel by the Sheffield members, during which the box of the Benevolent Fund was passed round, when £3 14s. 6d. was contributed. At the Council Meeting held in the afternoon the following gentlemen were duly elected : James Seymour Allen, L.D.S. Edin., 22, Ashfield Road, Broomhill, Sheffield ; Luther Heaton Drabble, L.D.S.Glas., 69, Wicker, Sheffield ; Percival Tookey Leigh, L.D.S.Eng. and Glas., 6, Portland Crescent, Leeds ; Harry Evelyn Mahonie, L.D.S.Edin., L.R.C.P.Edin., 22, Wilkinson Street, Sheffield ; Ernest Edmund Taylor, M.B., C.M.Edin., L.R.C.P.Lond., M.R.C.S.Eng., L.D.S.Edin., 163, Cemetery Road, Sheffield ; William Bennett Tolput, L.D.S.Glas., Glossop Road, Sheffield ; George William Wood, L.D.S.I., Bridgegate House, Retford. To the Branch only : Samuel Mitchell, L.D.S.I., 21, Bradford Road, Dewsbury ; Arthur Pearson Wallis, L.D.S.I., Hallgate, Doncaster.

I. RENSHAW, *Hon. Sec.*

ORIGINAL COMMUNICATIONS.

The Basal Layer of Weil.

By J. HOWARD MUMMERY, M.R.C.S., L.D.S.

IN the first account published by Dr. Weil, of Munich, of his method of preparing sections of teeth without resorting to decalcification, he drew special attention to a clear space or zone of the pulp beneath the odontoblasts. In a communication by Prof. Patsch, of Breslau, to the *Deutsche Monatschrift für Zahnheilkunde* for August, 1892—a translation of which has recently appeared in a contemporary journal*—he discusses the question of the nature of this zone with especial reference to some recent criticisms by Professor von Ebner and Dr. Carl Röse.

As there may be many who do not clearly understand to what Dr. Weil refers as the basal layer, it may be well in the first place to give a few extracts from his original paper.

Professor Weil describes a layer or space which lies immediately beneath the membrana eboris. He says,† “I have hitherto found no description of the pulp in which this layer is mentioned, although it constantly occurs. It is distinguished by the fact that it lies (in these preparations) between two intensely coloured zones of the pulp, and in sections that have been sufficiently cleared shows no colour at all, or a very faint colour. With low powers nothing can be learned as to the structure of this layer, but with a magnifying power of 350 or more, it is seen to contain no cellular elements or nuclei, and appears as a web of extremely fine fibres which do not run perpendicularly through the layer, but obliquely towards the deeper layers, interlacing with one another. . . . It may be said with perfect security that they arise from the basal ends of the odontoblasts. It is, however, surprising that these offshoots do not follow the direction of the axis of the odontoblasts, but turn always in one direction or another, and thus form crossings. I could compare this layer with nothing else in histology but the so-called basal membranes, the limiting border between epithelium and connective tissue. The fibrillar structure is no argument against this comparison, for more recent histological works teach that there is between these so-called basal

* *British Journal of Dental Science*, vol. xxxv., No. 591.

† “Zur Histologie der Zahnpulpa,” Leipzig, 1887.

membranes and the epithelium, an inner connection by threads which proceed from the cells of the epithelium, and curving in a horizontal direction in close proximity to, perhaps in connection with, one another, form the membrane."

"In the lymph follicles of the intestine, V. Davidoff proved that the apparently structureless basal membrane could be resolved into fibres. So we see that in a basal membrane a fibrillar structure may be spoken of."

Dr. Weil then proceeds to speak of the objections that may be raised to this view—the great width of the layer in question much exceeding that of ordinary basal membranes; the fact that the fibrils are not bent to the axis of the epithelium cells, as with basal membranes; also that the odontoblasts are of mesodermic origin, so not strictly analogous to ordinary epithelium—but the secreting epithelium of the renal canal, he says, also has a mesodermic origin. He proceeds: "As these fibres at their origin are doubtless connected with the odontoblasts, I refer this layer to the *membrana eboris*, and regard it as the basal layer of the membrane." Concerning the connection of these fibres with the pulp, he speaks with less certainty. Further on the author says: "The vessels limit themselves to the pulp in its narrowest sense; I have seen no vessels stretching beyond the cortical layer of the pulp into the basal layer of the *membrana eboris*." Again he suggests that "each delicate fibril of the basal layer of the *membrana eboris* may be a means of communication between the nervous system and the odontoblasts, and that the latter formations may be regarded as nerve endings."

In reply to an inquiry by Dr. Weil some time ago, I told him that I had continually met with this space beneath the odontoblasts, traversed by fine fibres, in transverse sections of teeth cut by his process, and stained with borax carmine. A careful examination of my own specimens shows that in longitudinal sections including the whole length of the pulp chamber, there is no division to be recognised between the odontoblast layer and the rest of the pulp near the *end* of the root, and I notice in Professor Patsch's figure and description, the gradual narrowing of the layer towards the neck of the tooth until it is not visible, the pulp cells lying in contact with the odontoblast layer. It thus appears, whatever significance this observation may have, that it is in the *crown* of the tooth, beneath that portion of the dentine which is first completed, that this layer is most strongly marked.

According to my experience, the layer is not visible in young teeth, in the situation of the rapidly depositing dentine at the open uncompleted end of the root.

After an examination of a great many specimens cut by Dr. Weil's process, I find myself unable to endorse his statement that these fine fibres are all connected with the odontoblasts. I can distinctly trace a great many fibres through this layer to the dentine.

In the open-ended teeth mentioned above, the odontoblasts are, as I have described, much more widely separated from one another than elsewhere, and fibres may here be clearly seen passing from the pulp, between the odontoblasts, to the dentine, across the position of the layer of Weil, although in my specimens it is not visible in this situation.

In the specimens stained with borax carmine, and the aniline dyes, I do not notice any marked difference in staining reaction between the fibres forming this layer and many of those lying in the pulp beneath; there appear to be many fibres in the pulp apparently continuous with those of the basal layer, and not any more clearly stained.

Dr. Weil, in his paper above referred to, speaks of the blood-vessels as limited to the pulp in its narrowest sense, and says he has seen no vessels stretching beyond the pulp into the layer he describes. I have myself often seen them in this layer, and have a specimen cut by his process in which a vessel is seen in cross section lying among the odontoblasts; Dr. Patsch's drawing also shows a vessel in the basal layer. I have little doubt that Dr. Weil has also seen vessels similarly placed since his paper was written, and I think that an examination of further specimens will have shown him that scattered cells are frequently found in this layer.

As to the nature of Weil's layer, and the question whether it is an artificial product or a true anatomical structure, it is difficult to form a definite opinion.

Professor Von Ebner, a very high authority on the histology of teeth and bone, doubts the existence of any such layer as an anatomical fact, but looks upon it as an artificial product due to Weil's method of preparation. In a paper in the *Vierteljahrsschrift für Zahnheilkunde*, he says: "The odontoblasts are attached to the dentine by means of the dentinal fibrils—they cannot, therefore, when the inner portions of the pulp shrink up, very well be torn away, but the layer immediately under the

odontoblasts will seek to approach the centre of the pulp, and before it comes to a rupture, the tissue elements which form the connection of the odontoblast layer with the pulp lying beneath, will be very strongly stretched. These tissue elements are chiefly fibres, and in this way a layer of fibres can be artificially produced which before was non-existent. The demonstration of the basal layer which Dr. Weil has given, is under all circumstances of interest; his preparations give a more general view and show better than does any other process, that from the tissue of the pulp, rich in cells, which is found beneath the membrana eboris, numerous fibres penetrate towards the odontoblasts, but that these fibres, in life, exist as a special basal layer cannot be proved by Dr. Weil's method."

Dr. Carl Röse also criticises the method of preparation, and considers the basal layer to be an artificial product.

There are, I think, some strong reasons for considering that this is not an artificial product. The blood vessels of the pulp are seen in cross section retaining their perfectly round contours, and not at all distorted, as one would be led to expect would be the case if the tissue of the pulp had undergone shrinkage to the extent suggested. This explanation also does not account for the disappearance of the zone towards the growing extremity of the root of open-ended teeth. Here there is a wider surface of pulp to shrink than in the crown, and it is not supported, as in the crown, by a thick layer of dentine, but only by a very narrow ring of calcified material, so that here, if anywhere, the stretching of the fibres should be more distinctly visible. I have met with several specimens of decalcified teeth which exhibit the layer described by Weil.

Critics of the process of Weil have objected most strongly to the prolonged heating of the specimens, but we must remember that the heating takes place in the very last stage of the process, after the tissue has been thoroughly fixed and hardened. Still there is no doubt that it would remove one element which lays the method open to criticism, if this heating could be modified or done away with, and Dr. Röse, I believe, suggests slow drying in the air, but this would, of course, very much prolong the process. The modification is, however, well worth trying. I think it can hardly be disputed that as to the odontoblasts themselves and their connection with the dentine, the process in question is more likely to give true appearances than any method of decalcification.

Mr. Hopewell Smith's process gives very excellent results, but we have always the fear that the very strong acid used may have damaged seriously the finer elements of the tissue, and it appears to me that this would be more likely to occur at the inner border of the dentine where the denser material was continuously diffusing the strong acid into the surrounding looser pulp tissue.

However, it is, no doubt, important in any histological research to employ as many methods as possible, as it is only by the comparison of specimens that any sound conclusions can be arrived at, and this last-mentioned process appears to be by far the best of any decalcification method yet introduced.

Professor Patsch, in a passing reference to my paper "On the Structure and Development of Dentine,"* infers that in my investigation I may have made use of teeth which were not in a normal and healthy condition; he says that irregularly-placed teeth often do not show normal pulps. But I did not make use of irregularly placed teeth, but of *regularly* placed, healthy teeth, removed in order to make room in the mouth.

I did not, however, rely so much upon these fully-developed teeth as upon those with incomplete roots, where the deposition of the hard tissues was in active progress.

No doubt irregularly-placed teeth are often imperfectly developed, and many apparently healthy teeth show deposits of secondary dentine in the pulps, as was long ago pointed out by Salter. In my paper, however, I did not make use of teeth showing any signs which appeared to be indicative of degeneration or imperfect development.

Contour Amalgams.

By E. PREEDY, L.D.S.Eng.

PERHAPS there is no operation in the art and practice of dentistry which is more lightly touched upon and carelessly glossed over by writers on operative dental surgery, than contour amalgam fillings; and yet, save where we actually give relief from pain, we confer more comfort on our patients by the careful restoration of a broken-down bicuspid or molar, than by any other operation we are called upon to perform.

The first step in the operation, after having broken down all

* *Philosophical Transactions*, vol. xiii., 1892.

weak enamel on the top of the cavity and removed decay, is the preparation of the cervical edge, and though it may sound somewhat Hibernian, it is nevertheless perfectly true that the most important part of a contour filling is the cervical edge, and in the preparation and finishing of this portion of the work lies the secret of success.

We may find the cervical edge either (1) well above the gum line; (2) on a level or slightly below it; (3) well below.

In the first two cases the rubber can be applied (if the cavity is not too far back in the mouth) as soon as the cervical edge is prepared; in the last-named condition the rubber is only in the way. All weak enamel in the neighbourhood must be removed, especially at the junction of the parallel upright walls with the cervical edge; this can best be done by a doubly bent hoe excavator should the cavity be a distal one, a small hatchet-shaped instrument if the cavity be on the mesial surface. The cervical edge itself is best prepared by passing a small scaler under the gum and drawing it down or up as the case requires, so that all friable enamel is removed; then thoroughly excavating with right and left spoon excavators ground flat on the edge, or a long right-angled chisel, until the "ring" of the instrument is heard cutting sound tissue. If the side walls are thin and unsupported by dentine, it is best to cut them down, for they are sure to break away from the filling should they meet any hard substance whilst masticating; the last three square-edged plug trimmers figured in Ash's catalogue will be found very useful in preparing these interstitial edges.

If the rubber can be applied effectually, now is the time to do it, if put on before, there is a danger of cutting it whilst preparing the cervical edge; if, however, the gum is inflamed or redundant and lies over the cervical edge, soft gutta percha should be packed in, or better still, a small roll of wool dipped in a varnish with gutta percha placed over it, which will drive back the exuberant gum in two or three days, leaving the cervical edge beautifully clear.

Should a separation be desired and there is no occasion for immediately inserting a permanent filling, it is well to proceed as follows: Having first protected any sensitive surface with a layer of oxysulphate of zinc or thin oxyphosphate mixed with carbolic acid, pack in hard gutta percha, filling well up to the bite, and leave from two to four months, when a good separation will have been effected quite painlessly, the cervical edge being left perfectly clear.

A reliable anchorage for a contour filling is most important if it has to bear the pressure of an opposing tooth in mastication. In bicuspidis it is best to cut along the fissure enlarging the distal extremity, for the walls of a cavity where a contour amalgam is indicated will seldom permit of grooving without seriously impairing their strength; in molars cut well back with a medium sized enamel bur, enlarging the end of the cut on the same plan as in the bicuspidis.

If the tooth is pulpless and it is questionable whether the walls be strong enough to support the filling, either a How's screw post or a gold pin firmly fixed up the root (palatine if a molar) with an oxyphosphate cement will support the largest fillings, the union of a gold pin with Flagg's Contour Amalgam being absolutely perfect.

The next step is to select a matrix. After trying various forms of matrices, the writer is of opinion that very thin sheet steel, cut to, but rather larger than, the interstitial outline of the cavity, especially following the shape of the cervical edge and wedged firmly into position with balls of wool, soft wooden wedges, or a temporary gutta percha, will give better results than any other matrix; its thinness allows it to slip easily below the gum in deep interstitial cavities, and it leaves at the completion of the filling just sufficient space for floss silk to be passed between and not sufficient for food to get wedged by the action of the opposing teeth, the importance of which latter point cannot be overrated.

The matrix having been placed in position, pack in amalgam as dry as possible and compress thoroughly with small pointed burnishers until the cavity is about two-thirds filled; now remove the matrix and finish the lower part of the filling with flat burnishers, or a strip of thin rubber dam pulled from side to side, but if the steel has been carefully adjusted and the amalgam thoroughly packed, no trimming will be found necessary. Now select a piece of steel shaped to the required contour (three or four different shapes being kept ready for use), fix in position and complete the filling. Remove the rubber, after cutting it away from the teeth, so as not to disturb the contour, and carefully trim to the bite before removing the matrix.

If the amalgam has been inserted dry, there will be no need to absorb the surplus mercury with tin or gold; both these metals should be avoided if possible, especially the former, as it is difficult

to thoroughly free the surface of the filling from the tin. If the contour is large the amalgam must be used softer or the filling will be injured, either in removing the matrix or when trying the bite; scrap gold should then be used and the surface finally smoothed with soft amadou or moist cotton wool.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

General Medical Council.

November 22nd, 1892.

Sir RICHARD QUAIN, Bart., in the chair.

COVERING.

The REGISTRAR: We have on the programme a report by the Council's solicitor in regard to a statement submitted to the Executive Committee by the British Dental Association, and referred to the solicitor by the following resolution:—"That the statement of the British Dental Association concerning cases of 'covering' in the practice of dentists be referred to the solicitor, with a request that after communicating with the Dental Association, he will report to the Executive Committee in November, advising the Council as to the course to be adopted." The Executive Committee received the following report from the solicitor:—

"London, W.C., July 19, 1892.

"GENTLEMEN,—In accordance with the Minute of the General Medical Council dated 23rd May, 1892, I have been in communication with the British Dental Association, and I have now the honour to send in my report on their statement.

"That statement mentions fourteen cases of 'covering' by dentists of such a character as would, if proved against a medical practitioner, involve the removal of his name from the *Register*.

"It seems to me to be as much the duty of the Council to protect the public in the matter of dentistry as to protect it in the matter of medical practice.

"The Executive Committee will, however, recollect with what care the Council proceeded in the case of medical practitioners; what years of warning it gave them; how it promulgated a minute upon the subject, and took the utmost pains to convey that minute to every medical practitioner; and how several cases were tried, and the practitioners warned before any name was taken off the *Medical Register* for the offence of covering.

"I would advise the Council to issue a similar warning to dentists, and to cause such warning to be conveyed to every dentist on the *Register* through the British Dental Association, who have undertaken to promulgate the warning amongst all the dentists whose names appear on the *Register*. They add that they shall be prepared to undertake such duty to the satisfaction of the Medical Council.

"Looking to the position of a very large number of dentists, and to the mode in which they have been in the habit of practising, I think that covering in their case should be dealt with even more cautiously, if possible, than it was dealt with in the case of practitioners on the *General Medical Register*.

"I have the honour to be, Gentlemen,

"Your very faithful servant,

"FREDK. WILLIS FARRER.

"To the Executive Committee."

In regard to this subject the Executive Committee, on November 21, passed the following resolution:—"That the solicitor's report be submitted to the General Council; and that the solicitor be directed to prepare a draft warning to registered dentists against the employment of unqualified assistants, analogous to that given to registered medical practitioners on April 21, 1883."

Sir WALTER FOSTER: I move that that be received and entered on the minutes.

Mr. WHEELHOUSE seconded the motion, which was agreed to.

Sir WALTER FOSTER: I now move that the report be accepted. Our duties with regard to the registration of dentists are very similar to our duties in the case of the registration of medical practitioners, and when they point out to us that there is a system of covering existing in their profession which is very analogous to the system of covering which exists in our own branch of the medical art, we ought to give them all the help we can in putting down what is an illegal and undesirable practice. It seems in various parts of the country this system of using unqualified persons to practise dentistry has been followed very largely, and dentists very naturally and properly complain of it. They having shown this desire to purify their own ranks from illicit kinds of practice, I think this Council, as far as it has power to go, should give them every opportunity to make their body as respectable as it can be made under the existing laws. I move that the report be accepted.

Dr. GLOVER: I second that. This question was brought forward at a former meeting, but since then the mind of the Council

has made progress, and it now sees the propriety of extending the same principle with regard to covering to dentists as to the general practitioners, and I hope we shall equally act upon the principles we have adopted. I second the resolution.

Sir WM. TURNER : There is one point in connection with this resolution that should not be entirely overlooked. The resolution is to the effect that the solicitor be directed to prepare a draft warning to registered dentists against the employment of unqualified assistants. Now when an analogous document was prepared with reference to registered medical practitioners, which is referred to in the resolution, the document was approved of by the Council before it was issued.

Sir W. FOSTER : I have no objection to add that.

Sir WM TURNER : I think we should follow out the same order in this matter—that this draft warning is to be submitted to the Council and approved by the Council.

Sir W. FOSTER : I will add those words.

The PRESIDENT : That will postpone the consideration of the question until next May. It has been before us a year already.

Sir. WM. TURNER : Do not you think the solicitor might draw it up before this session terminates? I see no reason why we should not get it at this meeting.

Sir WALTER FOSTER : The motion will be "That the report be adopted, with the understanding that the draft warning be submitted to the Council during the present session."

The motion was agreed to.

Thursday, November 24th.

Sir RICHARD QUAIN, President, in the chair.

REGISTERED DENTISTS AND UNQUALIFIED ASSISTANTS.

The REGISTRAR : The Council have now to consider the draft warning to registered dentists against the employment of unqualified assistants, prepared by the solicitor pursuant to the direction given in the following resolution of the Executive Committee :—
"That the solicitor's report be submitted to the General Council, and that the solicitor be directed to prepare a draft warning to registered dentists against the employment of unqualified assistants, analogous to that given to registered medical practitioners on April 21, 1883."

The draft warning is :—"Any registered dentist practising for

gain, who knowingly and wilfully deposes a person not registered or qualified to be registered under the Dentists Act to treat professionally on his behalf in any matter requiring professional discretion or skill any person requiring operations in dentistry of a surgical character, will be liable to be treated as having been guilty of infamous or disgraceful conduct in a professional respect, and to have his name erased from the Dentists' Register."

Sir WALTER FOSTER : I move that the draft warning as drawn up by the solicitor, which I presume is in the best legal form, be received and entered on the minutes.

Mr. WHEELHOUSE : I beg to second that.

The motion was agreed to.

Sir W. FOSTER : I now move that it be adopted.

Mr. WHEELHOUSE : I will second that.

Dr. GLOVER : I understand that this resolution is to be put into the hands of the dental profession. Now we know that even with regard to covering, and the regulation that has been drawn up by the Council with respect to it, there is still a degree of ignorance professed amongst medical men. I would suggest that a copy of this resolution be sent to every person on the Dental Register from the office of this Council.

Sir W. FOSTER : As I have explained to Dr. Glover, I quite agree with him with regard to the principle, but of course we must remember that it is a question of some expense. If necessary I shall be prepared to point out the way in which it may be best brought before the attention of the dental profession.

The motion for the adoption was then agreed to.

Sir W. FOSTER : When this matter came before the Executive Committee it was in consequence of the action taken by the Dental Association, by which they offered to circulate any warning of this kind amongst their members. I objected to that course as unworthy of this Council. I do not think we can rely on any private body doing that kind of work for us. When a similar warning was adopted by the Council with reference to the medical profession it was published mainly by appearing in our minutes and being put into the medical journals, and I think advertised in the medical journals. Still, we have constantly gentlemen coming here telling us that they were not aware of the action of the Council in this matter. I think, therefore, considering this state of things, we ought to send this warning to every registered dentist, and although it may cost a little money I think the Council

ought to be well able to spend that money. I move that this warning be issued from this office to every gentleman whose name appears on the Dental Register.

The PRESIDENT: It appears to me that the course adopted in giving notice to the medical profession is the course that should be also followed with reference to the dentists. In the former case it was agreed that a notice should be inserted in the medical journals, and in like manner a notice should be inserted in the dental journals. That was thought to be sufficient in the case of the medical profession, and we have also the fact in this case that the Association will have the opportunity of giving the information to the members of its own profession. There seems to be no reason why we should go to more expense in this matter than we did in the case of the medical profession. That was the feeling that was entertained by the Executive Committee.

Dr. GLOVER: I beg to second Sir Walter Foster's motion. I think the Council should send a copy of this warning to every registered dentist. It will not cost very much, and then there will be no excuse. As to relying upon the Dentists' Association to do this, I think such a step would be objectionable. I do not think a great body like this should rely upon a body of that description to do its work.

Sir WILLIAM TURNER: I am afraid Sir Walter Foster does not realise that the dental fund is already in debt to the Council. It is not like our funds in England and Scotland, where we have a balance to our credit. I am afraid the dental fund is in debt. The cost of this proceeding would add an additional charge to that fund of about £20 for postage, besides the printing. I should think it would be something like £30 on the dental fund—not upon our fund. You cannot altogether put on one side the financial position of the dental fund in looking at this matter. It seems to me the dentists would not have any reason to complain of us if we did for them precisely what we did for the medical profession, and I do not think we are called to do more. If we advertise the decision of the Council in the same way as was done in the case of the medical profession, and if we give to such persons as may wish to have them copies of this resolution for distribution, I think really we shall comply with all that is necessary.

Mr. MACNAMARA: It seems to me that the cost of the printing would be a mere bagatelle. Our Registrar can tell us how many

people there are on the Dental Register. The postage would only cost $\frac{1}{2}$ d., and supposing there are, say, two thousand dentists, it would amount to a very small sum. No doubt there is an excess of work in this office, and I would suggest that the whole of these notices might be directed and sent off by some lady for a couple of pounds. I would undertake to discharge the whole duty myself if the Council would give me a ten pound note.

The REGISTRAR: It was the wish of the dentists themselves that the work should be done through their Association. There are now, say, six thousand members on the Dentists' Register. They would themselves perhaps pick out the persons who are immediately concerned, and under whose notice they would wish to bring this resolution. It was their own desire to undertake to circulate it, and they would do it in a far better way than I could.

Sir W. FOSTER: No doubt the Dentists' Association would undertake to send it out and select persons, but what we ought to do is to warn everybody. It is a matter of business procedure, and business procedure should be carried out in a business-like way. If we do not do it we shall be met by people coming here before us saying that they had no notice of this resolution, that they had never seen any advertisement of it, and that it had never reached them in any form; and so they would plead ignorance to the Council with regard to this fact.

Dr. ATTHILL: I think it is not dignified of us to ask other people to do this work for us; in fact it would be a certain amount of insult to the dentists if it was not done by us. I think our duty is to let every dentist have a copy of this notice.

Mr. TEALE: We are dealing with a rather different kind of body from that of the medical profession, and it is of extreme importance that there should be no excuse left for any one saying that they do not know anything about it. I am very strongly in favour of sending this notice out from the Council.

The resolution was then put:—"That the warning to registered dentists against the employment of unqualified assistants be issued to every dentist whose name appears in the Dental Register."

The resolution was agreed to.

The PRESIDENT: It has been carried that it shall be done from the office. I confess I think it is a very great mistake.

The Odontological Society of Great Britain.

THE usual monthly meeting of the above Society was held on Monday, December 5th, the PRESIDENT (Mr. J. Howard Mummery) in the chair.

The minutes having been read and confirmed, the PRESIDENT said it was his painful duty to record the death of another member of the Society—Mr. Henry Moon—who had been Vice-president for three years. He felt sure the members would feel sincere regret at Mr. Moon's death.

The LIBRARIAN reported gifts of books, and the CURATOR (Mr. Storer Bennett) announced the acquisition of a series of photographs of the beautiful case of French specimens in the Museum. Mr. M. Hobson had presented an upper temporary central gemmated with a supernumerary. Dr. Fergus had presented an upper molar with a large abscess on the inner side of the palatal root at the point of union of the root and neck.

Mr. BOWMAN MACLEOD showed a skull belonging to Dr. Symington, of Edinburgh. The specimen was of interest on account of the extraordinary number of ordinary irregularities which the teeth exhibited. On the left side a temporary canine was persistent, there was an inverted bicuspid and a canine behind it, the first and second molars were irregular, and the wisdom tooth was placed behind them in a crypt, so that its coronal surface was directed towards the posterior aspect of the mouth. The same thing existed on the right side; the coronal surfaces pointed backwards; the wisdom, although not to be seen, was heard rattling as a loose body somewhere in the bone. Mr. Macleod also showed some specimens of gemmation, including an upper molar gemmated with a second molar.

Mr. ACKERY narrated the following case. The patient, a lad of 16, had lost the crowns of all the teeth from caries, all the permanent teeth having been erupted. The lad's mother had stated that he was the seventh of a family of nine; she had had an illness six months before the birth of the boy. At birth he was healthy, and remained so until 10 months old; then he had bronchitis. He suffered more or less from persistent vomiting, and at 14, dysphagia came on; it was for this that he was admitted to the hospital. His first teeth began to come when he was 12 months old, and appeared slowly. The permanent teeth came at the usual time, and were poor in composition. Four years ago he had been under treatment for the dysphagia; there was no history to account for the wide-spread decay, unless it was due to the stomach disorder. The saliva was fairly healthy.

Mr. E. LLOYD WILLIAMS showed for Mr. Rowley, of Derby, an instance of gemmation of two molars, the posterior root of the first and the anterior root of the second being fused.

Dr. SIMS WOODHEAD then read his paper "On Inflammation of

Bone." Comparing the intimate structures of bone and the processes involved in inflammation of bone with other tissues, it was pointed out that the proportion of devitalised material in bone to active living tissue was greater than elsewhere, so that the effects of inflammation were more evident to superficial examination. As bone is nourished from two distinct sources—the nutrient arteries which pass through canals with hard undistensible walls, and the vessels ramifying in the periosteum—the inflammatory processes must and do vary according to the area implicated. Dealing with the main phenomena of inflammation as the result of the reaction of tissue cells to an abnormal stimulus, the relation of the cell to the process of bone formation was carefully described. In an epiphysis at the margin of the cartilage and upon the homogeneous trabeculae lie a number of small nucleated cells—osteoblasts; between the trabeculae are delicate blood vessels, the walls of which are formed of and surrounded by small nucleated cells. In the early stages of bone formation the cells predominate; later a homogeneous matrix appears; to be replaced by a more fibrous matrix, in time altering to the bony trabeculae. Large multinucleated cells exist also, being concerned with absorption processes. The periosteum, besides furnishing a fibrous vascular cellular sheath, protects the subjacent more vascular osteogenetic layer. This is highly vascular, and composed of nucleated cells in a fibrous matrix. The shape of the cells varies, being small and rounded superficially, but more fusiform, and larger near the bone. The small round cells probably are formative towards the matrix, but in inflammation they grow more numerous, apparently by proliferation, cease to be formative, and absorb the bone trabeculae. The German view of inflammation, which associated that process with the changes in the vascular walls, and the French view that it was entirely due to epithelial and connective tissues changes, taken by themselves are incomplete, for although one set of tissues may be affected more than another, yet there is always corresponding re-action in the others. Inflammation of bone, the result of some noxious stimulus, when acute, as from traumatism followed by invasion of a pus-forming organism, will cause changes almost too rapid for study. In less acute inflammations it is seen that the large endothelial cells of the vascular walls swell, become granular, then more hyaline, then undergo division; the similar cells in the perivascular spaces and the fixed connective tissue cells undergo a similar change. The surrounding lymph spaces show an escape into them of leucocytes and altered cells. The branched cells in the lacunae become altered in a similar manner to the other cells. The leucocytes and proliferation cells appear to revert to their primitive condition, acquiring increased mobility and plasticity, which they show by wandering and ingesting foreign or dead particles, and even attacking the firm, fibrous cartilaginous or bony matrix. The dilatations of bone spaces into

large cavities, described by observers, seem only possible if migratory and fixed connective tissue cells are able to absorb the trabeculæ. The increased tension in bony cavities during inflammation cannot be due solely to enhanced blood pressure; another purely physical factor, osmosis or dialysis, plays its part, the abscess walls possibly acting as a dialysing membrane. But a purely physical or purely chemical explanation must fail. An explanation is offered by chemotaxis or the effort made by the leucocytes and proliferating fixed connective cells to eliminate invading micro-organisms. Around any centre of pyogenic micro-organisms a process of digestion by the cells, whether fixed or otherwise, takes place. The degenerating or digested materials act as foreign bodies, and round the mass thus formed small nucleated extravasated cells are formed, together with larger cells derived from the connective tissue cells. Such cells appear to be definitely attracted by the products of these micro-organisms acting upon the tissue proteids; hence it is assumed that the increased tension in inflammatory areas is in part due to chemo-tactic action. In inflammatory centres of bone, as of other tissues around the zone of degenerated tissues, a cellular zone exists, the elements of which attack and devour both the devitalised material and even exhausted organisms. Thus both in cartilage and bone these cells disintegrate the bony matrix, removing the lime salts, and then rapidly eroding the matrix. Micro-photographs were thrown upon the screen exemplative of the statement made by the lecturer that inflammatory processes in bone run the same course as the soft tissues. The large spaces found in bone in acute inflammation may show not only a diminution in the quantity of decalcified matrix, but also a filling up, or osteo sclerosis. The lecturer passed on to consider the peculiar solid wedge-shaped infarcts found near the end of tuberculous bone, and explained their formation by extravasation, cell proliferation, and cell death *in situ* determined by a local invasion of micro-organisms. The process of calcification in chronic inflammation was then dealt with. There is a mass of active cellular elements constantly in contact with blood and lymph, which nourish and deport effete materials to and from them. Actual examination of these fluids show varying conditions of composition in this relationship. Dr. Woodhead from his researches is led to regard the formed matrix (or dead material) as playing the part of a dialysing membrane. It thus serves to separate the lime salts prepared in its immediate neighbourhood by the carbonic acid forming cells. This acid throws down the phosphates of lime. The three necessary elements for calcification were stated by Dr. Woodhead to be (1) devitalised tissue containing albuminoid matter; (2) a layer of formed material, *e.g.*, fibrous tissue, membrane, or as in bone matrix; (3) a layer of proliferating cells, such as, for example, always exist in the region of dead tissue. In bony tissues these cells are the osteoblasts, and their most impor-

tant function as regards calcification is the generation of carbonic acid. In all bone inflammations the ultimate changes arrived at depend upon the character of the action exerted on the cells by irritants, and by the resistive power of the tissues or cells acted upon. In acute inflammations, for example, rapid stimulation of the cells occurs, leading to death of some of them, whilst others, acquiring fresh activity, devour bacteria, their products, dead cells, lime salts, and even the bony trabeculæ. When the inflammation is chronic, digestion of the trabeculæ is replaced by an increased bone formation, the regular bony trabeculæ grow while deposition of lime salts takes place. In chronic specific inflammation, some of the cells undergo degeneration as the result of irritants arising from specific organisms, while deposition of lime salts in these dead cells gives rise to osteo-sclerosis, such as occurs in syphilis and tuberculosis.

The PRESIDENT spoke of the high merit and value of the paper.

Mr. H. BALDWIN asked how far proliferation accounted for the large number of cells found during inflammatory changes, as he believed it was commonly held now that proliferation only occurred after inflammatory activity had passed away, and then was only concerned with repair.

Mr. F. J. BENNETT enquired whether it was to be understood that the calcification of the intercellular substance was the result of loss of nutrition of that structure.

Mr. C. S. TOMES remarked that it was difficult to discuss the paper without first carefully reading it. A difficulty appeared to arise in accepting the view of calcification which Dr. Woodhead brought forward. For, in bone, and especially in dentines, when they had to last through a considerable part of the life of an animal, there are a number of penetrating canals, while in the more deciduous instances of the tissues there were fewer penetrating canals and no fine tubes. Another point was, it was difficult to reconcile the idea of bone matrix prior to and after the deposition of lime salts being practically dead tissue, when the intolerance shown by contiguous tissues and towards necrosed bone was considered.

Mr. ROUGHTON asked whether Dr. Woodhead had ever observed the large multi-nucleated cells taking part in the formation of blood vessels. Similar cells had been observed in the subcutaneous tissue of rats, &c., developing into capillaries; and he had seen and described similar cells in sarcomata undergoing the change into blood vessels.

Mr. W. B. PATERSON asked Dr. Woodhead's view as to the development of the giant cell, and whether he regarded it as a development of a leucocyte or not.

Dr. WOODHEAD, in reply, said that at one time he had believed that increase in the number of cells was entirely due to leucocytes, but if they looked upon the cells in any position as being irritated—and any irritation led to proliferation—they must believe that the cell-

ular elements played a part in the process. He had tried to follow the formation of these cells in various positions in an abscess, and although the leucocytes played, perhaps, a most important part in the early stages of the process, there was undoubted proliferation of the connective tissue cells; the protoplasm of which they were composed seemed to shrink in, and then proliferation occurred. In the later stages these cells acted partly as scavengers and partly by building up the cells. As regards the giant cells, he had not seen them in bone in connection with the formation of blood vessels. Referring to Mr. Tomes' question, Dr. Woodhead said he regarded the matrix, if not as dead, as practically devitalised tissue, as it played no part in connection with the body; he thought with regard to the formation of cementum that the canals played a most important part in determining the process of deposition in dead bone, the deposit of lime salts was the result of a slow deposition in a fine organic membrane; the canals probably acted as a means whereby the lime salts were taken away from the organic matter. Giant cells he looked upon as a series of cells in which, although the protoplasm did not break up, yet the nuclei divided pretty rapidly.

The Dental Hospital of London.

THE Annual Dinner of the past and present students was held, under the presidency of Sir Richard Quain, on the 3rd inst., at the Café Royal, the company including as visitors—Drs. Coupland, C. J. Hare, Harold; Messrs. Bryant, Langton, Pickering Pick, Bowman Macleod, Brownlie, Howse, Trimmer, and Richard Vasey.

The CHAIRMAN having given the health of "The Queen," proposed the "Past and Present Students." He said that it was through the persuasive eloquence of their excellent Dean that he was in the chair, and, as representing the Medical Council, he was sure that he fulfilled their wishes, for it was the desire of that Council that everything should be done to promote dentistry. He might give as another excuse for his presence the deep interest that he himself felt in their branch of the profession. He should be sorry to think that dentistry was not a branch of the medical profession, for he thought the study of the teeth second to none in interest, and he looked forward to the time when it would be regarded as second to none among the specialised branches of surgery. It was true that in ancient times the practice of dentistry was confined very much to the unskilled and unlearned, yet much might be found that might not be without its interest to them. Having quoted a paragraph by Bell, who spoke of the condition of dentistry when Hunter took up the subject, he referred to dentistry as it is now, which, he said, might be indicated as a type of conservative surgery. The development of modern dentistry had been aided by two classes of men, viz., the practical and the scientific.

Upon this foundation the modern system of dentistry had been established, culminating in the dental hospitals and dental departments of general hospitals, with their schools ; the examination of the highest surgical authorities, who required a distinct and prolonged curriculum, and an examination extending over three days, before the dentist of to-day could receive his licence to practise. The Scotch and Irish colleges of surgeons had in no sense been behindhand in helping forward the development. Having alluded in flattering terms to some of the more distinguished men who had passed through the hospital and school, he said the General Medical Council are willing to take, and are taking, great interest in advancing this department of the healing art, and he could assure his hearers that that body would do all in their power to help the dentists ; but they must help themselves, and he could prophesy a great future for them if they would avoid unprofessional actions, and devote themselves earnestly to their noble profession. He concluded by coupling with the toast the names of Mr. G. G. Campion and Mr. Northcroft.

Mr. G. G. CAMPION, in responding for "The Past Students," referred to the important resolution on the subject of "covering" which had recently been passed under the auspices and by the help of the chairman, and also to the action taken under Sir Richard Quain's distinguished predecessor, on the question of closing the Dental Register to men who had not obtained the dental diploma. These steps indicated the great interest that the Medical Council had taken in their welfare in the past, and which he had no doubt it would continue to take in the future.

Mr. NORTHCROFT, who was very heartily received, responded on behalf of "The Present Students." He said he wished it was in his power to return thanks for the students in as graceful terms as the toast had been proposed, but, unfortunately, he felt himself something like the ass who died of starvation between two panniers of hay ; there was no doubt much that might be said, but he was afraid he was not the man to say it. Present students had one advantage—they had no past, they were living in the present, and they could dream of the future, but fortunately could have no regrets for what might have been. He referred with great pleasure to his association with the Dental Hospital of London, for friendships that one formed there were of a lasting character, and of a value that no man could over-rate.

Mr. THOS. BRYANT gave The "Hospital and School." He had watched their rise, progress, and development under the fostering care of many friends, and more particularly of Sir Edwin Saunders, until at last they had become a full budding flower of which they could say nothing but good. Almost during his own lifetime the dental profession had been brought from obscurity to the exalted position which it now held. A great deal, of course, had been done by those not occupied in the dental profession, but more had been

done by those in it. They saw the necessity of higher education, and in that they had been encouraged by the corporation, which he had now the honour of representing, in the way of raising the standard of examinations. In conclusion, he associated the names of Dr. Hare and Mr. Morton Smale with the toast.

Dr. HARE, in responding for the Hospital, alluded to the want of proper accommodation for the large number of patients that daily resort to the Hospital for treatment, and to the need of public sympathy and monetary support to provide increased space and larger opportunities for work.

Mr. MORTON SMALE, the Dean of the School, in responding for the School, said that the development which had taken place in the scientific side of dental surgery, and the fact that it was now a legalised profession, had produced two results: first, an immense increase in the number of cases treated—last year the numbers were 54,177—and second, a large increase in the number of gentlemen entering the profession and requiring dental education, both which factors tended to a crowded state of an already over-burdened institution, and he maintained that if the future of the School was to compare favourably with the past, that a new hospital must be provided. Such a change would necessitate an expenditure of £40,000, and he had no hesitation in asking the public to help them to provide this sum. The staff and two or three friends of the hospital had already promised £3,000 for the purpose, and he was quite sure that the public would soon provide the remainder. A dental hospital never receives the public support that it deserves, because it is felt that it treats so small a part of the body, but he could assure them that the proper fitting up and the carrying on of a dental hospital was a very costly proceeding, and he ventured to appeal to those who have received benefit at the hands of dental surgeons to show their appreciation of such services by a liberal donation towards carrying forward the necessary improvements in this institution. £40,000 was a small sum, if only all who benefit through the existence of this institution would help. Forty donations of £1,000, eighty donations of £500, or one hundred and sixty donations of £250 and the amount was forthcoming. He was willing, and he was sure other gentlemen in the room were also willing, to be numbered amongst the one hundred and sixty.

"The Visitors" was proposed by Mr. H. BALDWIN, and responded to by Mr. PICKERING PICK.

Mr. J. SMITH TURNER very felicitously proposed the health of "The Chairman," and in doing so commented with satisfaction upon the *rapprochement* of the medical and dental professions as evinced in Sir Richard Quain's lifelong interest in them, and his presence in the chair that evening.

The toast was acknowledged by Sir RICHARD QUAIN.

The musical portion of the evening was carried out under the guidance of Mr. E. Lloyd Williams, and included, in addition to selections by the Hospital Musical Society, solos by Prof. Elvin, Messrs. Webster, Barrett, Hepburn, Taylor, Alfred Smith, Wheatley, recitations by Mr. Frank Braine, and whistling solos by Mr. Hardy-Corfe.

National Dental Hospital and College.

THE Annual Dinner of the past and present students was held at the Holborn Restaurant on Friday, the 25th ult. Sir JAMES CRICHTON BROWNE, M.D., F.R.S., presided, and there was a large attendance. Amongst the guests were Messrs. Chas. S. Tomes, Morton Smale, J. H. Mummery, F. Canton, S. J. Hutchinson, J. Smith Turner, and the Deans of several of the Medical Schools.

After the toast of "The Queen," the Chairman called upon the Dean (Mr. Harry Rose) to read his Report. This referred especially to the New Hospital and College buildings now in course of erection, and which it is expected will be in occupation this time next year. At present, the whole of the chairs are being utilised by students, and the records for the past year show that patients present themselves in ever-increasing numbers. When the Dentists Act was passed, it did not seem right for a public charitable institution to withhold the acquisition of knowledge from those who sought it in a legitimate manner, registered practitioners were permitted to take out short terms of hospital practice. That privilege is now limited, and, under the altered circumstances of the present day, will probably in the future be found unadvisable, except in the case of army and navy surgeons.

Sir J. CRICHTON BROWNE then distributed the following prizes and certificates for the Session 1891-92.

Rymer Gold Medal: Mr. F. M. Farmer. *Dental Anatomy*: Medal, Mr. R. E. Nicholls; Certificate, Mr. E. C. D. Bascombe. *Dental Surgery*: Medals, Messrs. R. E. Nicholls and J. S. McFarlane; Certificates, Messrs. F. M. Farmer and R. W. Ward. *Dental Mechanics*: Medal, Mr. J. S. McFarlane; Certificates, Messrs. E. C. D. Bascombe and F. M. Farmer. *Materia Medica*: Medal, Mr. F. M. Farmer; Certificate, Mr. J. S. McFarlane. *Histology*: Certificates, Messrs. Beverley and Kelsey. *Metallurgy*: Medal, Mr. R. E. Nicholls; Certificate, Mr. Reece. *Students' Society Prize*: Mr. R. E. Bascombe. *Entrance Exhibition* (value £15): Mr. Norman Reece. *Ash Prize*: Mr. H. B. Rowe.

In proposing "Prosperity to the National Dental Hospital and College," the CHAIRMAN said he preferred to strike a chord of sympathy instead of attempting to discourse upon technical subjects, especially as that chord was ready to respond. Such a dinner of past and present students was a meeting of those who came to enjoy the

pleasures of memory, and for others that of hope. Having described his visits to the present hospital, and the new one now building, he referred to the common bond of anatomical and physiological knowledge between the medical and dental professions, and in discussing the Dentists' Register he strongly expressed the opinion that as there should be no taxation without representation, there should be a dentist upon the General Medical Council. He should also have a medical qualification, but they would have no difficulty in finding a suitable man. Alluding to the great benefits the medical profession had conferred upon humanity by the study and application of preventive medicine, Sir James urged that the continuance of analogous efforts on the part of dental practitioners was much to be desired.

Mr. E. W. ROUGHTON and the DEAN responded to the toast.

Mr. J. SMITH TURNER, in a sympathetic speech, proposed the "Past and Present Students," and referred in feeling terms to the death of Mr. Felix Weiss.

Mr. MORGAN HUGHES and Mr. CECIL BASCOMBE suitably responded.

Mr. SPOKES proposed "The Visitors," to which Mr. HOWARD MUMMERY, President of the Odontological Society, and Mr. S. J. HUTCHINSON, Dental Surgeon to University College Hospital, replied.

Mr. CUNNINGHAM, in proposing "The Chairman," said that the address on "Tooth Culture," which the Chairman had delivered at Cambridge had spread far and wide, to a larger audience than he had then spoken to, and had done much to help preventive dentistry. Criticisms had been passed on such efforts, suggesting that it was a begging for the employment of their professional services, but without intelligence upon the part of the public it was difficult to do good work.

Sir J. CRICHTON BROWNE genially replied, and said that he hoped, if not in the same capacity, to attend again on a similar occasion.

Songs were contributed during the evening by Messrs. Alfred Smith, D. Hepburn, W. Rushton and others. There were also violin solos by Mr. John Pitts, and recitations by Mr. Ernest Genet. The proceedings were continued until a late hour.

Birmingham Dental Hospital.

THE annual meeting of the Birmingham Dental Hospital was held on December 2nd, at the Council House, the MAYOR (Alderman Lawley Parker) occupying the chair. The report showed that the institution had accomplished a greater amount of work during the past twelve months than in any previous year, the steady increase of work no doubt proving that the hospital supplied a long-felt and a

rapidly-increasing want. The committee had long striven to cope with the increasing work without materially altering the present building, but it had now become imperative to enlarge the accommodation. The alterations contemplated last year had been undertaken by the committee, and were now being rapidly pushed forward. A large, lofty, and well-lighted room, 40ft. by 12ft., had been erected, which would be devoted to filling cases, and was capable of accommodating twenty filling chairs. These alterations would cost upwards of £350, and the committee earnestly appealed to the public for the funds necessary to carry on the ever-increasing work of the hospital. The Surgical Committee reported that the pressure of work necessitated the house-surgeon working daily until one o'clock. The staff especially noted the large increase in the number of gold fillings—from 374 last year to 520 this year. It had been considered advisable to use nitrous-oxide gas more frequently than heretofore, with a view of curtailing the use of chloroform and ether as much as possible, thus saving much valuable time, as well as minimising the risk of danger to the patients—the number of cases having increased from 599 last year to 1041 this year.

MINOR NOTICES AND CRITICAL ABSTRACTS.

A Discussion on the Bearing of Recent Physiological and Chemical Research on the Question of Anæsthesia.*

INTRODUCED BY DUDLEY WILMOT BUXTON,
M.D., B.S., M.R.C.P.

ANÆSTHETIST IN UNIVERSITY COLLEGE HOSPITAL.

THE subject of anæsthetics has, since their first introduction, possessed a perennial interest. Still, perhaps at no period in the history of medicine have the mind of the profession and the attention of the public at large been more engaged by the conflicting theories and practice of anæsthesia than at the present moment. The field, which is fairly occupied by the matters we are here to discuss, is too extensive to render possible an exhaustive treatment of them, so it has been thought well to restrict our discussion to-day to the question of the physiology of anæsthesia by chloroform. If we deal with recent chemical and physiological work upon these lines, we shall find more than enough to occupy the time which is at our disposal. This question is no mere academic dispute: it is one which lies at the root of one of the most, if not the most, responsible of the duties falling to the lot of medical men; so, while dealing with its physiology as such, we

* At the Annual Meeting of the British Medical Association held in Nottingham, July, 1892.

must let a side light fall upon the problem of how to avoid fatalities under anæsthetics.

With this view I think we may usefully consider (1) in what ways do accidents, that is, departures from the normal procession of events under chloroform, occur, and (2) what explanations have science and experiment to offer of such occurrences?

Cases are recorded of accidents occurring:

A. Before operation has commenced; and these have been variously attributed to (1) fright; (2) reflex inhibition of the heart's action; (3) syncope brought about by direct action of chloroform itself, or of impurities therein contained; (4) interference with respiration arising from mechanical causes, for example, constricting clothes, holding of the breath, spasm of the larynx, spasm of the diaphragm and muscles of respiration.

B. During the operation; attributed to (1) shock, either simple shock; the direct effect of the operation upon an imperfectly anæsthetised person—this partakes of the character of the so-called "reflex death:" or the result of surgical shock making itself felt through and over and above the narcosis, for example, such cases as recorded of shock during operations upon the anus, rectum, vagina, and such highly sensitive parts; (2) syncope; (3) failure of respiration.

According to some authorities these cases would be grouped together, for those in which syncope is reputed to be the cause of death would, by them, be classed as belonging to the same category as (3) deaths from failure of respiration, since they contend that death results from paralysis of the respiratory centre in the medulla, the syncope being, in fact, the secondary effect of a respiratory failure none the less present because not detected until complicated by the attendant and consequential heart failure.

We may note here that probably this view may have to be modified, if not abandoned, when looked at from the standpoint of recent experimental research. The view may even have to give place to a belief that deaths at present put down to failure of respiration are many of them actually due to a primary cardiac asthenia consequent upon the damaging of the heart muscle by the chloroform, so that the cessation of respiration becomes a result of the primary heart disablement, and this even when the heart's action, feeble and incoordinate, might be detected subsequent to the cessation of respiratory movements.

C. After the completion of the operation; attributed (1) to the effects incidental to the operation, hæmorrhage, manipulation of viscera, or nerves; (2) to shock, the direct effect of the anæsthetic itself. At a later stage we shall have to point out that some of the phenomena evinced by human beings in the above circumstances have apparently no counterpart in experiments upon the lower animals. This fact has led some observers to infer somewhat unguardedly that the persons recording the cases have been led into error, and that the true cause of death was other than that assigned. While holding in highest estimation the appeal to direct experiment upon the lower animals, I think we are bound to say that such evidence as this affords must be accepted with considerable caution when it becomes at variance with the observation of credible witnesses of the effects of chloroform upon human beings.

A. Deaths arising before operation. Fear of impending death is a most complex psychic emotion, which, as far as we know, cannot

be found in the lower animals. I have found no evidence of its existence; a dog or a monkey will shrink from physical suffering, and may have learnt that certain manipulation implies after pain, and will struggle to get away to avoid this, but nothing at all of the nature of "death from fright" is demonstrable in the lower animals. There seems little doubt that such deaths among human beings are the result of a reflex inhibition of the heart initiated in the brain itself. These fatalities have occurred in pre-anæsthesia days, a notable example being the one of the patient in Edinburgh, who was to have had chloroform for the first time, but none being available, was about to be operated upon without it, when sudden death occurred.

Reflex inhibition of the heart's action before surgical operation must be carefully dissociated from shock, that is, stimuli conveyed afferently through sensory nerves, or the effects due to interference with the visceral plexuses.

While upon the one hand Brown-Séquard and others* stated that the impact of strong vapours upon the posterior pharyngeal wall caused the heart's action to be interfered with, and occasioned a fall in blood pressure, the same effects have been variously said to arise from irritation of the laryngeal mucous membrane by chloroform vapour. Other observers record the experience familiar to all who have experimented with rabbits, that as soon as chloroform is presented to their nostrils, there is at once a cessation of breathing, a voluntary suspension of respiration, and that this occurring in human beings causes a so-called laryngeal spasm, a cessation of respiration, and secondary lowering of blood pressure, and interference with the heart beat. On the other hand, Professor Ward† has, with Dr. Hare, traversed these statements, and has shown that if the trachea is canularised well away from the larynx and chloroform subsequently injected into it, only a temporary fall of blood pressure occurs. This being so, we can hardly believe that the direct irritation of the pharynx or larynx by chloroform vapour can do more than produce a temporary interference with circulation, although, of course, when the trachea is intact there may arise true laryngeal spasm with its accompanying dangers. The temporary closure of the air-ways, for example, the nostril closure and obliteration of the rima glottidis, has been shown to be of the nature of a protective reflex, preventing the entrance of a too concentrated vapour.

Intimately associated with the last alleged source of danger is syncope occurring in the early stages of chloroform inhalation under circumstances when fear and operation shock may be eliminated as possible factors in causing the result. In the first place, we are familiar with deaths in human beings occurring with the most startling suddenness, and within a few seconds or a minute or so of the commencement of inhalation. These must be due to chloroform, or some impurity which is contained in it. The anæsthetic, and not the operation, is undoubtedly the cause of these deaths.

Let us consider how physiology helps to explain such cases. If we test the effect of chloroform, applied in vapour or liquid, to the heart

* See Professor Rutherford, "Cause of the Retardation of the Pulse which follows Voluntary or Artificial Closure of the Nostrils," *Jour. Anat. and Physiology*, vol. vii., p. 283.

† *Medical News*, February 22nd, 1890.

muscle itself, we find it rapidly loses its contractility and excitability. These results are brought about with even an extremely small quantity of chloroform perfusing the detached heart in batrachians. On the other hand, it is asserted that the amount of chloroform necessary to thus injure the heart, which enters the circulation by inhalation or intravenous injection, could never so act in the human subject, because before the drug had sufficiently accumulated in the circulation the respiratory centre would have been destroyed, and the continuance of life rendered impossible. It is this point we must now discuss. It is alleged that when the lower animals are given chloroform continuously in such a way that free dilution of air takes place,* "a gradual fall of blood pressure occurs; the respiration then gradually flags, and eventually ceases; while, lastly, the heart comes to a standstill." A large number of experiments were made, and it was found this procession of events took place in each case. When the kymograms are examined upon which this statement is based, we find that in some instances the interval between the cessation of respiration and the failure of the heart is extremely brief. When, however, the chloroform is at a certain point discontinued, the blood pressure may continue to fall, the declension resulting probably from the continued absorption of vapour from the air cells, but it eventually rises to the normal. There is, however, a point beyond which, if the chloroform is pushed, no rise of blood pressure occurs—indeed it sinks uninterruptedly, and respiration cannot be restored spontaneously, even though the heart may continue to beat for an appreciable period. We may ask what is the explanation of these phenomena. The fall of blood pressure may have arisen from heart failure or from interference with the vasomotor centre. It cannot, of course, be asphyxial, as the pressure curve of asphyxia shows an initial rise, the after-drop being the result of exhaustion of the vasomotor centres. The same result is arrived at whether chloroform be inhaled or injected into the jugular vein, so that we cannot attribute it solely to any direct action upon the heart muscle. It might be assumed, however, that the vapour would, by its direct effect upon the terminal fibres of the vagi in the lungs, give rise to vasomotor changes of a reflex origin in the one case, while in the other a like result might accrue from direct action of chloroform upon the vasomotor centre.

Shore and Gaskell's experiments throw some light upon the matter here.† They connected two animals in such a manner that a cross circulation was established, so that one—the so-called feeder—actually carried on the entire circulation in the brain of the other, or the fed animal. If now the feeder was given chloroform by inhalation its blood pressure fell, its respiration was slowed, while in the case of the fed animal whose nervous system was also being circulated by chloroform-laden blood there occurred a rise of blood pressure, a slowing of the respiration, and a loss of sensibility. The experiment being varied and the fed animal, whose nervous system would then be protected, inhaling chloroform, a marked fall of blood pressure took place. Two further points may be mentioned here to be again referred to later; they are, that when the first experiment was pushed

* Hyderabad Report, p. 17; see also Exp. 168, 169, and 170.

† *British Medical Journal*, November 21st, 1891, p. 1089.

so that the brain of the fed animal became greatly affected by the chloroform-laden blood, the animal showed signs of extreme danger from respiratory paralysis even when the blood pressure remained good. On the other hand, when the fed animal was made to inhale a strong chloroform vapour the blood pressure would sink to zero and the heart's beats cease to be recorded, while the respiration was maintained.

If these experiments are to be accepted—and there seems little doubt further research will only confirm and establish them—we must regard the two vulnerable points in chloroform toxæmia to be the respiratory centre and the heart itself. Professor Wood and Dr. Hare's, and some of the experiments of the Hyderabad Commission when read by this light lend confirmatory support to these views by showing that vagal action has virtually little effect in causing death by chloroform, except when the patient is imperfectly under the influence of the narcotic. At the same time it must be admitted that these experiments are not conclusive, at least as regards the action of the vasomotor centre, for although they show that a fall of blood pressure will take place without any action of the vasomotor centre, they do not show that in the intact animal depression of the blood pressure may not occur as a result of the chloroform-laden blood entering that centre. This is borne out by Professor MacWilliam's experiments made to investigate how far the dilatation of the heart to which he has drawn attention is the result of or the cause of the fall of blood pressure.* MacWilliam found that a marked effect upon the heart might result before any appreciable fall of blood pressure occurred, a fact which is readily explicable when we remember that the initial effect of a small dose of chloroform is to stimulate the vasomotor centre.

Thus far then we are led to believe that chloroform exerts its action upon the respiratory centre and the heart substance. That the respiratory centre may be affected all agree, but on the other hand it is vehemently asserted that the heart is not directly affected by chloroform, or at least until after life is rendered impossible by respiratory failure.

The evidence in favour of cardiac involvement is, as far as physiological experiment upon the lower animals is concerned, complete and conclusive. We have already seen that the heart fibre, in common with other protoplasmic substances, is susceptible to chloroform, and readily loses its contractility and irritability when subjected to the influence of the drug, whether as a vapour or by perfusion. Now we must see what occurs when chloroform vapour of a low percentage, that is, below 4 per cent., is allowed to enter the lungs. Professor MacWilliam's† experiments have shown that from the first the heart muscle undergoes marked changes. It appears to lose, or to have temporarily suspended, its resiliency; the cavities of the heart expand and a general acute dilatation of the organ occurs. As this takes place independently of any excessive dose of chloroform, of any possible asphyxial phenomena, and when no vasomotor changes have

* Experimental Investigation of the Action of Chloroform and Ether, *British Medical Journal*, October 11th, 18th, and 25th, 1890.

† *Loc. cit.*

been brought about by the chloroform, we are forced to believe that this curious dilatation occurs as the direct effect of chloroform upon the heart muscle. Its immense clinical importance lies in the fact that although under ordinary conditions the heart muscle will, when the chloroform is withdrawn, contract and eventually regain its normal resiliency, yet this is not always the case; a point exists which appears to be attained at a different time by different hearts, and probably determinable by the vigour or want of tone of the heart muscle when the chloroform is inhaled, beyond which the heart loses its power of recovery, and death must result.

Were it necessary and did time permit, I would further quote Professor Wood, of Philadelphia, who asserts most positively that he also has seen again and again the heart fail in the lower animals while the respiration continued. Indeed, it would seem to be more consistent with our present knowledge of the physiology of the subject that many deaths under chloroform, when the patient exhibits no failure of respiration, are to be explained as resulting from the enfeebled state of the heart, which, although performing disorderly movements (*delirium cordis*), is yet unable to maintain sufficient circulation to nourish the nervous system, hence respiratory failure results.

It may be, I am aware, alleged by those who insist that the heart does not fail before respiration that all the experiments which tell against their views are either unreliable because carelessly performed, or else that the conclusions arrived at are not borne out by the graphic representations taken of them. Such criticism is at once disposed of by the fact that all the experiments to which I have referred were conducted by physiologists of eminence, and have been carefully repeated with corroborative results, and have been guarded by the most rigid control experiments.

The physiological bearing of the effects of interference with respiration under chloroform has been so well understood and largely insisted upon for so many years that we need not devote time to it here. Suffice it to say that many of the experiments of the Hyderabad Commission show with great force that asphyxial conditions arising from holding the breath, &c., are in fact protective so long as they last, but the gasping inspiration which follows is a source of grave danger lest it lead to the ingestion of an excessive dose of chloroform. A point which to us is of importance in this connection is the double danger which occurs when the interchange of air in the lungs by ordinary respiration is interfered with; first, the danger to the heart from pressure as it lies in the rigidly fixed thorax; and, secondly, the danger arising from the want of elimination of the chloroform already in the blood, when the blood itself is growing more and more de-oxygenated every second. The acme of danger seems to be reached in the case of emphysematous persons, whose barrel-shaped chests permit of regular inspirations of chloroform, but whose expirations are practically *nil*. When an apparatus for pumping in chloroform vapour is used this hazardous state of things grows worse.

There is still another, and possibly an important, factor in this problem, and it is the presence of chemical impurities in the chloroform employed. Dr. Du Bois-Reymond gave a communication before the Berlin Physiological Society and demonstrated his views. These appear to be, that while he believes chloroform commonly kills by inducing failure of respiration, it does so by virtue of impurities to

be found in even the best samples of the drug. The subject is at present very incomplete, and I am myself engaged in investigating how far chloroforms reputed pure will give different physiological reactions during fractionation. Dr. Du Bois-Reymond has found no difference in the pulse curves when pure or residue chloroform was used, but the pulse rate with the impure drug was slightly more rapid. The blood pressure remained higher at the moment of failure of respiration with pure than with impure chloroform. Respiratory failure with the impure chloroform occurred more rapidly than with the pure. It would be premature to pass judgment upon a line of work which is at present most incomplete, but I may perhaps be permitted to say that Du Bois-Reymond's results appear to me to be based upon far too slight a foundation for us to build upon.

B. The deaths occurring during operations are commonly set down to shock. Here, again, experiment upon the lower animals gives a result contradictory to our clinical experience. The results of the Hyderabad Commission are worth quoting.*

"In order to test the alleged danger from shock during chloroform administration the Committee performed a large number of those operations which are reputed to be particularly dangerous in this connection, such as extractions of teeth, evulsion of nails, section of muscles of the eye, snipping of the skin of the anus, &c. In many cases the operation was performed when the animal was merely stupefied by the chloroform and not fully insensible. In such cases a slight variation in the blood pressure would sometimes occur, such as one would expect from the irritation of a sensory nerve or from the struggling which ensued, but in no case in any stage of anæsthesia was there anything even suggestive of failure of the heart's action. In thrusting a needle into the heart there was often a momentary, but well-marked, fall of blood pressure, but even this was absent in all other injuries."

This statement is easily accepted by those who are familiar with physiological work. But I can hardly suppose that anyone who has enjoyed an extensive hospital experience would consider that what is above stated—and truly—of the lower animals applies in the same degree to human beings. Nor is it at all remarkable that animals accustomed through the very stress of their lives to severe exercise—running, jumping, fighting, &c.—should exhibit less reaction to sudden shock than man; and, again, the absolute dependence of their life upon the due performance of respiration explains the well-recognised frequency with which dogs in particular die when there is any interference with their respiration. On the other hand, the experiments of Milne Murray, performed some years ago, showed that resuscitation of rabbits can be achieved after they are practically, and to all appearances, dead if a tube be passed into the trachea and the chloroform-laden air be removed and replaced by pure air.

That syncope occurs in the lower animals when they are completely under chloroform, and so when no reflex inhibition can be supposed to act, is now completely proved by the careful work of Professors MacWilliam and Wood, as well as that of the Glasgow Committee. The attempted disproof of Professor McKendrick's experimental

* "Report of Second Hyderabad Chloroform Commission," p. 25, par. 33.

work by assuming that his tracings were simply those of asphyxia has been refuted by him and his coadjutors, so that we need not linger over it. The evidence of the above statements has been given so fully in the preceding part of this address that I will not repeat it.

Respiratory failure under complete anaesthesia is as real a danger in the lower animals as in man. How far the conditions of operation affect the danger is not at present clear. Posture from mechanical impediments to breathing can with difficulty be reproduced in the lower animals. Whether it is a safe proceeding to wait for evidence of respiratory failure seems answered by the evidence afforded by experimental research. Upon all hands we find antecedent vasomotor changes recognised as anticipating failure of respiration, simple failure being heralded by a "gradual but continuous fall of blood pressure," while asphyxial conditions lead to an initial increase of blood pressure. It remains to be seen how best we can recognise these warnings. In considering the careful Hyderabad experiments on artificial respiration, one cannot but be struck by the apparent capriciousness of the results arrived at. In this way, while some animals were restored after several minutes of cessation of respiration, others succumbed after a very brief period of deprivation of air. If the hearts of these animals are to have been considered only secondarily affected, no explanation seems to be at hand; but if, as appears probable, they underwent dilatation, and the movements observed in them *post-mortem* were merely the ineffectual muscular writhings commonly met with under such circumstances, the discrepancy is at once explained.

C. The experimental evidence bearing upon post-operative deaths under chloroform is hardly sufficient for us to dwell upon with any profit. The fact which I hope I have made apparent in the former portions of this address—that reflex shock plays a far less prominent part with regard to the lower animals than is the case with man—would seem to indicate that they are less likely to be killed after the operation if they have lived through it. A source of danger that we are at present but little acquainted with is the somewhat rapid fatty changes in muscle which it is alleged follows the repeated use of chloroform on dogs.

What, then, are the points we have been able to bring forward? What has recent research taught concerning chloroform? I think we may summarise it thus :—

(1) Chloroform in anaesthetic doses, where no asphyxial conditions are present, exerts an effect directly upon the heart muscle, leading by its weakening to a simultaneous cessation of the action of heart and respiration.

(2) In cases when respiration persists after apparently the heart has ceased to beat, when artificial respiration fails to restore the natural respiration, death is due to the direct toxic action of the chloroform upon the heart.

(3) That the fall of blood pressure is probably due primarily to the direct action of chloroform upon the heart muscle.

(4) That, even when slight blood pressure fall may be protective, it reveals a condition of the circulatory system itself a source of peril.

(5) That impurities in the chloroform have some, but what effect we do not at present know.

(6) That the elimination of these impurities will not necessarily remove the perils of chloroform.

(7) That the experiments upon the lower animals as regards "shock" are not a reliable guide taken by themselves in studying "shock" in human beings.

In conclusion, I may say I have attempted to state fairly the evidence on all sides—to attack the subject wholly as a scientific question, and to eliminate merely personal views and references, which I submit are out of keeping with such discussions and can serve no useful end.

THE CONDITION OF THE PUPIL IN ANÆSTHESIA.

Mr. JOSEPH WHITE, President of the British Medical Association, drew attention to the condition of the eye during the inhalation of anæsthetics, especially when the stage of excitement was passing off—the eye rolled from side to side, the conjunctiva often became more and more feeble, and the eye at rest. The pupil invariably oscillated between dilatation and contraction, and then remained contracted, and perfect sleep occurred; and if this stage were maintained, a long operation might be safely performed as a rule. If inhalation were pushed beyond this, the pupil dilated, the breathing became stertorous, relaxation of sphincters and other muscles occurred, and danger arose.

ANÆSTHETICS IN AMERICA AND AT EDINBURGH.

Dr. LAWRENCE TURNBULL (Philadelphia) said that after the publication of the report of the Hyderabad Chloroform Commission, Dr. J. Melvin Lamb, of the Surgeon-General's Office, Washington, had at his request employed clerks, and given his own time also, to extract from every journal, both American and European, the desired information. The results were presented before the Section of Surgery of the American Medical Association for 1890 and 1891, and published in book form. The conclusions at which Dr. Lamb and he arrived were that from ether there were fewer deaths than from chloroform, and that it was necessary to watch both the respiration and the heart. The circular letter of inquiry issued by the Anæsthetics Committee of the British Medical Association had been printed in a modified form by Dr. Turnbull, and sent out by Dr. Lamb from Washington. The replies received were few in number, and it was subsequently ascertained, through a series of personal applications made by Dr. Joseph Leidy, jun., that in few hospitals were any records kept.

Questions asked, together with Summary of Answers received.

A. Programme of records and information desired:

(1) The total number of administrations of each anæsthetic from January, 1892, to May 14th, 1892, in your hospital, or under your supervision.—Ether, 1,500; chloroform, 298; A.C.E., 100.

(2) The number of cases in which death has occurred during or shortly after anæsthetisation.—Chloroform, 1; ether, 3; A.C.E., 1.

(3) The number of cases in which dangerous symptoms have occurred.—Ether, 2; chloroform, 9; A.C.E., 1.

B. Your opinion, formed from your own personal experience, as to:—

(1) The relation of the various anæsthetics which you have used.—Opinion divided, the majority from ether, chloroform, and A.C.E. equally safe.

(2) The best method and manner of administering them.—Cone, various inhalers and napkins.

(3) When to use one and when the other.—This question rarely answered. Ether in weak persons, chloroform in strong, or when brain or kidney disease exists.

(4) The most effective methods of restoring patients threatened with death from anæsthetics.—Inversion, head lower than body, stimulants hypodermically; alcohol, atropine; no mention has been made of strychnine except in Dr. Leidy's return from the Pennsylvania and Johns Hopkins Hospital.

C. (1) How are students taught to administer anæsthetics, and how far are they compelled to gain a practical knowledge of administering them in the medical schools or hospitals with which you are connected?—Rarely answered; 25 per cent. are taught practically, the remainder theoretically.

Chloroform Administration in Edinburgh.

Dr. Turnbull then described observations made by him during a visit to Edinburgh. Prior to all operations in the Royal Infirmary, the heart, lungs and kidneys are examined. In the morning before the operation, nothing is given to the patient but a cup of beef-tea. If there has been constipation, a purge is given the evening before. The chloroform is administered on a towel by a senior student, who has been under instructions for six weeks. Professor Chiene's directions to the students are as follows:—

Action of Chloroform.

Is (1) stimulant; (2) sedative.

- (a) Abolishes sensation.
- (b) Abolishes power of motion and reflex action.
- (c) Stops respiration.
- (d) Stops heart's action.
- (e) Kills patient.

Method of Administration.

Towel *versus* engine. Brain's *versus* valves.

- (1) Give all your attention.
- (2) Have your artery forceps ready.
- (3) Watch the breathing.
- (4) Watch patient's appearance.

How do you know when the Patient has had enough?

- (a) Insensibility of conjunctiva.
- (b) Muscular relaxation.
- (c) Local insensibility of part to be operated upon.

How do you know when the Patient has had too much?

- (a) Tongue falling back.
- (b) Glottis closing.
- (c) Fainting.
- (d) Vomiting.
- (e) Respiration and heart's action stopped.

Professor Annandale had pointed out to him two defects in Junker's regulating inhaler, modified by Krohne and Sesemann, of Edinburgh. The Professor had employed this apparatus successfully in private cases at times, but found two objections to its use. If the bottle containing chloroform was full, and pressure made suddenly on the air reservoir, pure chloroform was injected into the throat and chest of the patient. At times the valves would become charged with frozen chloroform from the great reduction of temperature. Dr. C. A.

Sturrock, who administered chloroform for Professor Annandale, found that it required from seven to eight minutes to place a young person under the full influence of chloroform. The older the person the more time was required, say from fifteen to twenty minutes.

In a recent case he gave a man aged 28, six ounces of chloroform, and yet he was not fully under its influence. Dr. Sturrock also employs the open towel, and commences with about (f 3 ij) from a graduated bottle. Dr. Turnbull concluded by presenting:—

A NOTE ON THE ADMINISTRATION OF CHLOROFORM IN THE
GYNÆCOLOGICAL DEPARTMENT OF JOHNS HOPKINS
UNIVERSITY, BY THOMAS S. CULLEN, M.B.

The heart is examined, and, unless there is evidence of weak heart, chloroform is used. The clothing around the neck is loosened, the lips, nose, and chin anointed with vaseline, and a folded towel placed over the eyes. The cone is impregnated with chloroform and held about eight inches above the patient's face. She is told to breathe naturally, and by the time twenty-five inspirations have been taken the cone is resting on the face or about $\frac{1}{8}$ inch above it. When the vapour of chloroform is exhausted a few drops more are added. The pulse is carefully watched, with the index finger of the left hand on the temporal artery. The respiration should be watched carefully, and can be followed in the lower part of the chest or detected by the warm expiratory air felt by the hand placed over the mouth. Should the pulse show signs of weakness, 30 minims of brandy are given hypodermically, every five to fifteen minutes if necessary, always using a disinfected syringe; if little relief be afforded, $\frac{1}{10}$ gr. of strychnine or 10 min. digitalis is given with the hypodermic injection of brandy; if the pulse still be weak, chloroform is replaced by ether. [This change was made in 44 out of 187 cases operated on.] Should the breathing be laboured, the cone is removed and the angles of the jaw elevated, merely keeping the mouth open. This usually suffices, but should the difficulty still continue the tongue is gently pulled out with tongue or artery forceps. The best sign of complete relaxation is the limber condition of the arms when raised from the side. The pulse usually falls to 60 by the time the patient is thoroughly anæsthetised.

The patient being under the anæsthetic, the question arises as to how much shall be given. The object is always to keep the pupil well contracted; this rule is only deviated from in those cases where the abdominal cavity is to be irrigated with salt solution. Here about two minutes before irrigation the anæsthetic is pushed until the pupil is midway between contraction and dilatation; as soon as the solution is poured into the cavity, the pupil again contracts on account of the stimulant action. Sometimes when the pupil is midway between contraction and dilatation one may be in doubt as to whether the patient has received more than the desired amount or not enough. On ceasing the administration for a few seconds, if not enough has been given the pupils will dilate and the patient may stir; if more than desired the pupils will contract.

*Methods adopted where Dangerous Symptoms have occurred in the
Administration of Chloroform.*

The method about to be described is original with Dr. H. A. Kelly; it has proved satisfactory in producing regular inspiration and expira-

tion, and resuscitating all of the cases (about twelve in number) in which dangerous symptoms have been observed.

As soon as it is seen that a patient has stopped breathing and the radial pulse is either feeble, intermittent, or entirely absent, and the



pupils dilated, the operation is instantly suspended, and one of the assistants jumps upon the table and stands between the patient's legs, sometimes near the knees, sometimes with his body between her feet,

and with his arms under the knees elevates the body from the table so that the buttocks are raised twelve or fifteen inches above its plane, while the upper part of the back and the scapular region still rest on the surface of the table (see illustration).

The head is allowed to drop slightly over the edge of the table until the chin and throat are almost on a line. The surgeon takes his position at the head of the table. The patient's head rests in the hollow of his thigh and is supported there by this and kept from dropping into a position of too great extension. The whole of the body is bared from hips to shoulders, and the surgeon proceeds to produce regular inspiration and expiration by first grasping the patient with both hands under and behind the lower thoracic (inferior costal) region. The lower chest is then pulled forward. This produces at once a suction of air into the chest. After waiting two or three seconds the movement is reversed. The surgeon uses both hands to compress the lower thoracic region and force the chest back towards the table. In addition to the advantage that this carries air into the chest and forces it out, producing rhythmic respiration under control of the surgeon, the blood in the body is carried by the posture to the thoracic and cerebral regions and currents are started by the respiratory effort to and from the heart, which cannot fail to have a value in stimulating regular action. After one, two, or three minutes of this sort of exercise the patient usually begins to make voluntary efforts at respiration, when the surgeon carefully times his own movements to act in a supplementary manner.

Education in the administration of anæsthetics as given to junior residents and nurses in the Gynæcological Department: (1) These pupils are instructed as to the difference in the methods of administering chloroform and ether, and as to the relatively greater danger of chloroform. (2) They are required carefully to observe a number of cases of anæsthesia, taking notes. (3) They are allowed to administer each anæsthetic under personal supervision of an experienced assistant. In this way they are fully instructed in methods of anæsthetisation. *Caution.* Under no circumstances is an assistant, who has been in the habit of administering ether at other clinics, allowed to undertake the use of chloroform without this previous careful instruction.

CONTRAST BETWEEN LABORATORY EXPERIMENTS AND CLINICAL ACCIDENTS.

Reflex Effects on the Circulation.—Dr. Frederic Hewitt wished particularly to lay stress upon several differences which existed between the human being and the lower animal under the influence of an anæsthetic. In the first place, reflex efforts upon the circulation, even during proper and deep anæsthesia, were certainly occasionally noticeable in man. He had seen such effects in operation in the neighbourhood of the vagus in the neck, in nephrectomy, and in other cases. The circulatory depression was liable to be more serious in the case of chloroform than in that of ether. Such cases as these were rarely if ever met with in the lower animals.

Respiratory Obstruction.—But a more important distinction between the behaviour of man and that of the lower animals was that in the former there was a distinct tendency for respiration to become obstructed. This had been pointed out by Sir Joseph Lister. Dr.

Hewitt thought that this tendency for the air-way of man to become obstructed at or about the larynx was not met with, at all events to anything like the same extent, in the lower mammals. Then again there were cases in which spasm of the respiratory and other muscles occurred during the use of chloroform in man. Imperfectly established anæsthesia was prone to be associated with this state. It was a well-known but curious fact that death under chloroform was more common in vigorous and muscular subjects than in feebler patients. This was probably due to the greater tendency which such subjects exhibited for respiratory spasm to occur. Extremely nervous, very muscular, and also alcoholic patients often gave trouble under chloroform from temporarily suspended breathing before deep anæsthesia was produced. He submitted that such complications during the use of chloroform in the physiological laboratory were not likely to manifest themselves. The thoracic and abdominal muscles might become fixed in a state of expiration, and resist all attempts at artificial respiration.

Syncope.—Patients with large flabby hearts as well as those with other forms of cardiac weakness were more prone than others for syncope during this respiratory arrest to take place. He asked whether similar states were ever observed during the administration of chloroform to dogs and monkeys. Then again, cases were on record in which the act of vomiting had been attended by sudden syncope. Had this condition its analogue in the laboratory of the physiologist? Fright in the case of man appeared to play a part in some instances.

The Condition of the Pupil.—Dr. Hewitt urged that the usual pupil of deep chloroform anæsthesia should be termed a moderately contracted and not a perfectly contracted pupil. The latter usually corresponded to a somewhat lighter and more sleep-like anæsthesia than the former. He had found that the most common size for the pupil of deep anæsthesia was 2.5 millimetres. This pupil acted as a rule to light, and was associated with a fixed condition of the globe. A larger pupil might either mean that the patient was emerging from proper anæsthesia, or that he was becoming too profoundly narcotised.

THE IMPURITIES OF CHLOROFORM: THE REMOVAL OF CHLOROFORM VAPOUR FROM THE LUNGS.

Dr. RALPH STOCKMAN said that he had been much interested in what Dr. Dudley Buxton had said, as during the last few years he had had the opportunity of examining a number of impure specimens of chloroform, the impurities being readily detectable by smell and taste, but apparently being present in such small amount that they were not obtainable unmixed with chloroform. Such chloroform was not found to be more poisonous to animals than ordinary good specimens, and hence he had come to the conclusion that fatal results could scarcely be due to such impurities. As regards Pictet's chloroform and Du Bois-Reymond's experiments with it, he fully agreed with what Dr. Dudley Buxton stated. The dangers of chloroform narcosis must depend, therefore, not on the minute amount of impurities which might ordinarily be present, but on the general condition of the patient and on the administrator. The unavoidable condition of the patient doubtless accounted for many deaths. It must be remembered that the depressed condition in which the central nervous system and heart were placed by chloroform was necessarily a more or less dangerous condition, and it could scarcely be expected that surgical anæsthesia

could ever be maintained with perfect safety to the patient. Dr. Stockman then referred to the advisability of injecting ether subcutaneously in chloroform accidents. In heart failure it was probably of value, but in respiratory paralysis it seemed to him that it must aggravate the condition. Lastly, he wished to draw attention to some valuable experimental work by Dr. Milne Murray, of Edinburgh, on recovery of animals apparently dead from chloroform by passing a tube into the trachea and sucking out the chloroform vapour. He was able from his own experiments to confirm the value of this method, but was not aware that it had ever found any application in practice.

THE USE OF NITROUS OXIDE IN MINOR SURGERY, AND ITS COMBINATION WITH ETHER.

Mr. RUMBOLL, F.R.C.S. Ed. (Leeds), said that, four years ago, whilst present with a patient at a dentist's, he was surprised to see the amount of work which could be done by a dexterous operator whilst the subject was under nitrous oxide. At that time Mr. Rumboll had a patient with a tuberculous nodule in the neck over the sternomastoid. Knowing that she had arranged with the dentist to pay her a visit, to extract a decayed tooth under gas, he arranged to remove the nodule at the same time. Having everything ready—chloroform and ether in reserve, in case they were required—the dentist administered the gas and gave the signal to commence. Mr. Rumboll made an incision through the skin, removed the nodule, and inserted two sutures. The dentist then removed the face piece, extracted the tooth, and in about ten seconds the patient recovered consciousness. She had felt nothing, and expressed surprise at the operation being completed. Since then Mr. Rumboll had used nitrous oxide largely for the minor operations, so frequently cropping up in general practice, such as:—

1. Opening a whitlow.
2. Opening abscesses in various parts of the body.
3. Evulsion of ingrowing toe-nail.
4. Inserting sutures for cuts, the result of accidents.

Mr. Rumboll had been able to insert seven sutures in a large flesh wound in the forearm, a medical student giving the gas. Another interesting case was that of a man suffering from three large hæmorrhoids; they were protruding beyond, and tightly constricted by the sphincter ani, giving him intense pain. He refused to have them removed or to take any anæsthetic. He was finally persuaded to have nitrous oxide, which he had previously taken for dental purposes. The gas was administered by Mr. Charters Birch, L.D.S. (Leeds), who kept the patient in an unconscious state for nearly three minutes, whilst Mr. Rumboll dilated the external and internal sphincter muscles completely with the thumbs, and pressed up the piles well beyond the internal sphincter, where they remained. Next day the patient resumed his ordinary business, that of a commercial traveller. Another case was that of an empyema in a very delicate young lady of 24, whose respiration was much embarrassed, so that Mr. Rumboll preferred not to give chloroform. Under gas the patient remained unconscious whilst an incision was made through the chest wall into the pleural cavity and two large drainage tubes introduced. The patient recovered consciousness immediately, and was much relieved by the operation.

Since then the same operation had been repeated with the same anæsthetic. He had also used nitrous oxide in the excision of tonsils, but did not advise its use in that operation, as in some cases the jactitations produced by the gas might embarrass the operator.

The Administration of Nitrous Oxide.—In the administration of gas, to ensure full and speedy anæsthesia, attention to the following details was important :

1. The face-piece must be of such a size as to fit over the mouth and nose, so as to keep out all extraneous air, especially in a man with a heavy beard and moustache.

2. It was advisable to encourage the patient to take a few long inspirations and expirations before turning on the gas.

3. The gas was best turned on towards the end of a long expiration, as by so doing the patient drew in a large amount of gas, undiluted with air, during the next inspiration. If this precaution were not taken, and air was inspired with the gas, struggling would almost certainly ensue, the patient would require a much larger quantity of gas, and narcosis would not be so profound.

4. It would be found that the patient would go under better, and much more quickly, if the gas were given under pressure produced by pressing slightly on the distended gas bag.

The experience gained in a few cases would enable the practitioner to tell when to commence operating. When once experience was obtained, the anæsthesia might be almost indefinitely prolonged, by the occasional removal of the face-piece, thus allowing the patient a few inspirations of air, and reapplying so soon as symptoms of returning consciousness showed themselves.

Nitrous Oxide followed by Ether.—Perhaps for the general practitioner, gas would be found most useful in combination with ether. He now always preceded the administration of ether by that of gas. Out of 400 cases, he had found that not 2 per cent. struggled, and in these, he believed it was due to giving an insufficient quantity of gas. There was a total absence of excitement ; gas being tasteless, the patient was spared the suffocating odour of ether. On an average, it took a few seconds over four minutes to produce complete insensibility, and as there was no struggling and sickness to prolong the anæsthesia, much less ether was used. The average time for each patient was nearly uniform, and the subsequent recovery from its effects was very rapid, there being so little ether to be eliminated.

He believed that to precede the administration of ether by gas was much safer than to give ether alone, as all struggling was avoided : undoubtedly, to patients suffering from a weak heart, the violent struggling when ether was being given alone must be a source of danger. From inquiries made of a large manufacturer of gas (basing the calculation on his estimate of eight gallons of gas being used to each case), the annual consumption showed that there were four million cases of gas administrations each year in the United Kingdom. This might be taken as a fair yearly average for the last ten years ; during that time the deaths attributed to the employment of gas were five in number, *i.e.*, five deaths out of forty million cases ; and it was doubtful whether any one of them was due absolutely to the effects of gas alone.

Description of Gas and Ether Apparatus.—Mr. Rutherford had constructed for him an apparatus in which the valves were differently arranged to those in Clover's apparatus, and fitted more accurately. A small reservoir on the top contained the ether, which was turned on

when required. The outside being made of glass, the administrator could see the quantity of ether being used, and instead of turning the inhaler round to turn on the ether, as in Clover's, a small pointer only was turned through half a circle, from right to left. The inhalation was begun with the pointer at 0; when the patient was nearly under gas, the pointer was turned to No. 1, which indicated that he was inhaling one part of ether and three of gas. The pointer was then rapidly turned to No. 2, when the patient was inhaling two parts of ether and two of gas. By this time he would be unconscious; the gas bag was removed, and the ether substituted. Mr. Rumboll had found this apparatus work very well in every way, and would recommend its use. A small bag, made and sold by Mr. Rutterford at the Dental Depot, Cookridge Street, Leeds, contained all the anæsthetist required—gas, ether, chloroform, etc.

Mr. GEORGE ROWELL, F.R.C.S. (London) said he wished to call attention to one or two points. First, he wished to allude to a possible form of death under chloroform from the sudden stoppage of the administration after a little time, and before any chloroform had been absorbed into the blood. This occurrence, according to Dr. Robert Kirk, of Glasgow, might cause an equal reaction from the sudden removal of a force which was maintaining reflexly a great and profound effect upon the circulation. In spite of the absence of proof of this theory, Mr. Rowell thought it possible that primary cardiac failure might arise as Dr. Kirk had described. If incorrect, the theory ought not to be very difficult to disprove. If it was a fact that syncope could be induced in a dog by suddenly stopping the administration of chloroform after a certain number of seconds, the production or not of this condition after division of both vagi ought to clear up the matter. Whether or not syncope might occur in this way, Mr. Rowell thought the continuous and steady administration of chloroform until anæsthesia was complete was an important detail in practice. He thought that a too careful administration of chloroform had often caused dangerous symptoms, and alluded to the fact that in several cases the occurrence of one fatality from chloroform in the practice of an anæsthetist had been followed by a second. Mr. Rowell then referred to the physiological action of chloroform, and said that, from a physiological point of view, chloroform was nothing if not a cardiac poison. When a dog was asphyxiated, and the heart had stopped and the blood pressure fallen to the abscissa line, it could be readily brought round within the next minute or so by opening the left pleural cavity from the front, and pressing upon the heart with one or two fingers some 20 times, at the rate of 70 or 80 times a minute. It was not necessary to empty the heart; a slight pressure drove on some blood. This could also be done when chloroform had been given, but then it took longer for the heart to recover. He would like to see this method of restoring the heart beat tried in the next case of primary chloroform syncope after other methods had failed. He also wished to allude to the powerful effect of a hot sponge applied to the perineum in cases of circulatory failure under chloroform.—*The British Medical Journal*.

Compound Fracture of the Inferior Maxilla treated by Wire Suture.

By T. S. CARTER, L.D.S.R.C.S.ENG.

DENTAL SURGEON TO THE LEEDS GENERAL INFIRMARY.

THE obstacles which have to be overcome in order to maintain fractured portions of the inferior maxilla *in situ* are so numerous that I desire to record the method which I have adopted in several cases with equally good results. The great advantages over other methods are the perfect rigidity of fractured portions, neatness, cleanliness, absence of a bulky splint, and an earlier use of the maxillæ for masticating purposes.

A powerful wherryman, aged 19, was admitted into the Leeds General Infirmary on May 11th, suffering from compound fracture of the lower jaw, &c. A gutta-percha splint and a four-tailed bandage were applied, but without effect, and on May 19th I was asked to see the case. I found the lower maxilla fractured transversely across the ramus on the patient's left side, also perpendicularly between the two fangs of the first molar on the same side, and likewise perpendicularly through the socket of the second bicuspid on the patient's right. The



FIG. 1.

front portion was much displaced, being deeply depressed and exposing the second fang of the molar in its full length. The front portion was also considerably overlapping the posterior part, carrying the median line of the maxilla considerably over to the patient's left side. I took impressions in wax of both maxillæ. On May 20th the patient was anæsthetised, and with a dental engine and a specially-made bayonet-shaped drill I made a hole through the jaw between the first and second molars on the patient's left side, holding an oral spoon on the inner side to guard the drill from piercing the root of the tongue. I next passed a stout silver wire through the drilled hole and bored a second hole between the fang of the canine and the first bicuspid, and having brought the wire through from the inside, twisted the ends together and tightened them with pliers, I bent the tail down flat, so as to be out of the way. The chief difficulty in these cases is to return the wire after having passed it through the first drill hole. The method

I adopt is as follows :—While drilling the hole, I hold, or get a dresser to hold, an oral spoon on the inner side as a tongue guard. Having pushed the wire through into the bowl of the spoon, the latter curls it from the tongue and one can then seize it with a pair of forceps. I then bend a long loop on it, and, having passed a fine wire through the second drill hole, attach it to the loop and draw it through. The oral spoon is a great help by safeguarding the tongue, turning the wire, and preventing the finger from being lacerated in feeling for the wire—an important factor in cases of a specific character. In addition to the suture I applied a Hammond's splint, which fixed the fractured portion on the patient's right, and finally a well-ventilated gutta-percha splint.

On May 26th the parts were in a most satisfactory condition. There was no discharge and the patient was free from pain. On June 2nd the portions wired together were in perfect position, but the back teeth met before the front ones, probably owing to the fracture through



FIG. 2.

the ramus. A broad cotton bandage (double thickness) was applied, the frontal portion being tightened in order to raise the body of the jaw. On the 11th the teeth were well opposed to each other. The patient was free from pain, and all looked healthy. He was made an out-patient. On July 7th the bandage and Hammond's splint and wire suture were removed. All was found firm and in good position. To avoid future trouble from the stumps on the patient's left side I removed them.

In a case which I attended some time ago there was the same happy result. The inferior maxilla was divided in the median line to facilitate the removal of cancer from the floor of the mouth. There was difficulty in obtaining union in the ordinary way, but the application of a strong wire suture, applied as described, answered most efficiently, and there was rapid union.—*The Lancet*.

OBITUARY.

Henry Moon, M.R.C.S., L.D.S.

WE have to record the death of Mr. Henry Moon, late dental surgeon to Guy's Hospital, at the age of forty-seven. He was born at Tottenham, Middlesex, and was the son of Mr. William Moon, a gentleman in large general practice there. He was for a time educated at Bruce Castle, but being of delicate constitution he had private tutors at home, and afterwards went to Germany. On his return he entered at Guy's Hospital, and after qualifying, devoted himself to dentistry, it being considered unwise for him to undertake the rough work of general practice. He became Vice-President of the Odontological Society, Examiner in Dental Surgery at the Royal College of Surgeons, England, and dental surgeon to the Dental Hospital, London, and on the retirement of Mr. Salter he was appointed dental surgeon to Guy's Hospital and lecturer on dental surgery. He wrote the article on Dental Surgery in "Bryant's Surgery," besides many papers in the Odontological Reports and in the JOURNAL OF THE BRITISH DENTAL ASSOCIATION. About four years ago his health began to fail, and after much urging he went to New Zealand, where he improved for a time, when family affairs brought him again to England; his health however, again gave way, and he died on November 14th. Of gentle, kindly manner, most conscientious, generous, and thoroughly reliable, it was no wonder to his friends that he succeeded in private practice as rapidly as he did in his public position.

MICROSCOPICAL AND LABORATORY GOSSIP.

THE following makes an efficient and pleasant mouth wash :—

Ry	Thymol	...	...	...	...	gr. x.
	Spr. Vini. Rect.	...	...	...	...	ʒss.
	Boracic acid (saturated sol.)	...	...	...	...	ʒss.
Misce.						

Two teaspoonfuls to be used to half a tumbler of water.

THE use of vaseline oil in place of alcohol for the external application of iodine is recommended by the *Prag. Rdsch.* The iodine, 3 to 5 per cent., is dissolved in ether, and the ethereal solution added to the vaseline oil.

THE formula of the fusible metal which Dr. C. M. Richmond uses for bridge-work is as follows.

Tin	...	...	...	20	parts by weight.
Lead	...	...	...	19	" "
Cadmium	...	...	...	13	" "
Bismuth	...	...	...	48	" "

The metals to be melted together in the order named. The compound can be melted and poured into a plaster impression without generating steam, as it melts at 150° Fahrenheit.

THE value of peroxide of hydrogen depends very much upon its quality, and it is a good plan to keep it in a cool place, as the extra equivalent of oxygen is readily dissociated at 65° F.

DR. DWINDLES finds that by washing amalgam in bicarbonate of soda (common baking soda), after mixing with mercury, he cleans it and prevents it becoming discoloured. Amalgam fillings inserted by him twenty, thirty, and more than forty years ago, still remaining good.

IN *La Metallurgie* a method of removing a coating of nickel which does not adhere well is recommended by M. P. Dronier. The article to be treated is plunged into an oxidising liquid composed of bichromate of potash, sulphuric acid and water in the proportions ordinarily used for batteries. It should then be taken out more or less quickly, according to the thickness of the deposit, washed, and if necessary, repolished.

ANNOTATIONS.

THE IRISH BRANCH.—This Branch will meet in the Royal College of Surgeons on Tuesday, the 20th inst., when we understand that Dr. Theodore Stack will be nominated as President, in succession to Mr. Booth Pearsall, who retires from that office, and that Dr. A. W. W. Baker will be nominated as Vice-president. According to the business programme, the meeting promises to be unusually interesting.

WITH the present number of the Journal we present our readers with the volume of *Transactions* at our last Annual Meeting held

in Manchester. We trust in its present compact form it will be found not only interesting but useful, and especially so to those of our members who were unable to be present at the meeting.

LIST OF MEMBERS.—The new List of Members will be published early in the year. Corrections, either of qualifications or addresses, should reach the Hon. Secretary, Mr. W. B. Paterson, 40, Leicester Square, W.C., before December 31st, in order that the new issue may be as accurate as it is possible for such a list to be.

THE past month has indeed been an eventful one in the history of our profession. Seldom have the annual gatherings of the Dental Hospital of London, and the National Dental been held under such favourable auspices. The dinner of the former was perhaps the largest yet held, but it is rather from the fact that the chair was taken by Sir Richard Quain that it must be regarded as so successful, for he may justly be regarded as the representative in this country of the medical profession. His speech in proposing the health of the past and present students will be welcome to all interested in our welfare; to hear from his lips that it is the desire of the Medical Council that everything should be done to promote the interests of the dental profession, and that he himself feels a keen and deep interest in our work regarding dentistry—not in the light of a separate profession, but rather as second to none amongst the specialised branches of surgery—is indeed a great step forward.

At the National Dental Hospital the chairman was Sir James Crichton Browne, and he, in giving the toast, spoke like Sir Richard Quain of the common bond between the two professions. It is also a good point to find one so eminent in his profession expressing the opinion that a dentist should have a seat upon the General Medical Council, and using as an argument the fact that representation should accompany taxation. Statements coming from such authorities cannot fail to be of the greatest advantage to us as a profession.

A CASE OF SPASMODIC ACTION OF THE LOWER JAW.—In a recent number of the *Lancet* an interesting case of spasmodic action of the lower jaw is recorded by Mr. Noble Smith. The

affection consisted in a powerful continuous grinding movement of the teeth, the lower jaw acting spasmodically towards the right. The commencement of the trouble dated to an illness six years previous, in which through exposure to cold the left leg and back became paralyzed. The pain and distress which the condition caused had increased in severity during the past four years, so as to become almost unbearable. The muscle which acted incessantly was the left masseter, but the temporal and pterygoids on that side, and also those of the right, were occasionally in action. Thinking that the affection might be due to irritation from the teeth, these were carefully attended, and all dental irritation removed, with a slight temporary result. Mr. Smith then determined to excise a portion of the nerve supplying the masseter, with the result that the spasm entirely ceased, and so relieved the patient of her suffering.

SAURIDON, A NEW DISINFECTANT.—This new disinfectant is said to be a residual product of an uncommon kind of blackstone shale, which is composed of animal and vegetable remains, is remarkably light, and yields a large proportion of heavy volatile oil. By a process of distillation the oil is extracted, the residual product being reduced to grains of different sizes, varying from a fine powder to the size of a pea. The powder is claimed to have an instantaneous effect upon obnoxious matter, while it is said to be tasteless, colourless and harmless to all animal life.

EPILEPTIFORM TIC.—In a recent number of the *Revue de Médecine* M. Féré discussed the possible relation of this disease to epilepsy. Trousseau gave to this disease the name of "névralgie épéleptiforme," simply because the disease in its onset and duration somewhat resembled epilepsy. M. Féré, however, is of the opinion that the disease is actually a manifestation of epilepsy, and he supports his theory by quoting one or two important cases. In two, the patients, after suffering for some period from "tic," became the victims subsequently of true epilepsy; but as he states both these may have been coincidences; but in another which he quotes the evidence seems more convincing, as the same patient suffered from both epilepsy and epileptiform neuralgia, both of which disappeared under the administration of bromide of potassium.

DIFFUSE CELLULITIS OF THE NECK DUE TO CARIOUS TEETH.—An interesting case of diffuse cellulitis of the neck, apparently of dental origin, recently occurred at St. Mary's Hospital. The patient, when examined at the hospital, was found to have two or three carious teeth in the lower jaw, one of which especially had given him trouble for about a month, the cheek being swollen on the same side. Four days before he was admitted he had been seen by a doctor and advised to "come in" that same day, as his neck was then much swollen and he had difficulty in swallowing, and his voice was husky. On the day of going into hospital he could only speak in a whisper, had been unable to swallow any solid food for about four days, was very weak, and had difficulty in breathing. His neck was greatly swollen all round, especially on the right side, where the carious tooth was. His temperature was 101.8. He complained of considerable pain, and could scarcely open his mouth at all. Ether was administered, during which he expired. The *post-mortem* showed that there were signs of old chronic periostitis at the root of one of the lower molars on right side, and an abscess containing about 3i. of pus extending down from the jaw into the cellular tissue of the neck. There was a deep-seated cellulitis involving the cellular tissue right down to the trachea.

A CURIOUS CASE OF BURIED TEETH.—An interesting if not a unique case of buried teeth is recorded in the October number of the *Dental Record*. The patient, aged twenty-four, applied to Mr. Traer Harris for the irregularity of the right upper central, and also for advice relative to the absence of the right upper lateral and canine. On examination a hard and somewhat nodulated tumour could be felt through the gum in the region of the right incisive fossa, a small oval opening in the gum disclosing a tartar coloured tooth surface, which was in nearly direct contact with the distal edge of the central; this latter tooth being in a very oblique direction. The first step in treatment was the removal of the right upper central; subsequently the buried right lateral was removed, and in probing the missing canine could also be felt lying in a transverse direction under the floor of the nose. The lateral incisor was found to be dilacerated to a very marked extent. "It was doubly flexed upon itself, the crown lying on parallel lines with the lower third of the root. Its convexity was forwards while

its crown curved away, so that its cutting edge was directed towards the palate." There was a well marked puckering on the concave surface. The relation of this tooth to the canine was the most interesting feature of the case, as the lateral practically embraced the canine, that is to say this latter tooth was lying in a direction transverse to the long axis of the lateral, and fitting into the concavity produced by the dilaceration.

STUDENTS' SOCIETY, DENTAL HOSPITAL.—The usual monthly meeting of the Students' Society of the Dental Hospital of London was held on Monday, November 14th, W. B. Paterson, Esq., President, occupying the chair. A large number of new students were proposed and seconded and duly elected. The Librarian announced that Mr. Rymer had presented to the Society his new book, entitled "A Note Book for Dental Students on Dental Anatomy and Physiology." In the course of the evening Mr. George Seymour showed a right upper wisdom to which the tuberosity was adherent, the latter having been fractured previous to being taken out by Mr. Seymour. An interesting discussion ensued on the question as to the possibility of deafness following such an accident. A useful pair of forceps, of a shape between a Read upper stump and upper bayonet forceps, also a mirror with a raised edge around the glass to enable operators to more easily carry their amalgam in the case of an upper molar, were shown by Mr. W. May. A paper was then read by Mr. W. R. Gillett upon "Points in Extraction." The paper itself, although not giving as much detail as might have been expected, brought forth a highly interesting discussion, in respect of which it is specially gratifying to know that there is a growing desire amongst the student members, and also among fresh students, to endeavour to discuss and learn by asking questions, and various points on the different subjects. The evening was closed by a vote of thanks to the writer of the paper and to gentlemen who had contributed casual communications, and the announcement that the next meeting would be held on December 12th, when Mr. Curling Hope would read a paper upon "Some of the Uses of Electricity in Dental Practice."

STUDENTS' SOCIETY, LIVERPOOL DENTAL HOSPITAL.—The opening meeting in connection with the above Society was held October 21st, 1892, Mr. E. J. Phillips, in the absence of Mr. Bates, the President, occupying the chair. The minutes of the previous meeting were read and confirmed, and several gentlemen were proposed as members. Mr. Gilmour showed a tooth to which a part of the floor of the antrum had adhered in the operation of extraction. He also exhibited a lower bicuspid, the root of which was occupied by a pin of some considerable size. Mr. Phillips then delivered the inaugural address. He confined his views chiefly to the requirements of students, and some very useful and practical hints were gained as a result of his brilliant address. Concluding this he called upon Mr. Guyler to read a paper on "Neuralgia," after which a very animated discussion resulted, in which Messrs. Phillips, Royston, Pidgeon, Edwards, Mansell, Black, Gilmour, Roberts, Parsons and Scholefield took an active part. A vote of thanks to Mr. Phillips for his address was proposed by Mr. Parsons, supported by Mr. Edwards, and seconded by Mr. Gilmour, while Mr. Guyler was also awarded a vote of thanks for his interesting paper.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.—The inaugural meeting of the session 1892-1893 was held on the evening of Monday, November 14th, when Mr. W. Bowman Macleod addressed the students, and Mr. Fred. Turnbull, L.D.S., read a paper entitled—"Facial Neuralgia and its Treatment." The unavoidable absence of many past students prevented the usual lengthened discussion, Messrs. Lindsay, Dilks-Page, and Malcolm alone criticising Mr. Turnbull's communication. Eleven students, including one lady, were nominated as members of the Society. An interesting social event followed on the evening of December 2nd, when a smoking concert was held in the Café Royal, Princes Street. Mr. W. Bowman Macleod, and later in the evening Mr. Frederick Page, occupied the chair. Of the students, Messrs. Campbell, Verrier, Martin, Thoms, and Douglas Logan contributed to the programme, and with the assistance of many talented friends the proceedings were kept up with spirit till a late hour.

On December 5th the second ordinary meeting was held, Mr. F. Page, L.D.S., the President, in the chair. Mr. R. Lindsay

and Mr. J. Graham Munro, L.D.S., were the openers of a discussion on "The Journal of the British Dental Association for November." Both gentlemen spoke at some length anent bacteriology, the dental pulp, and crown and bridge work, Mr. Lindsay emphasising the value of the article on "The Past, Present, and Future Training for Prosthetic Dental Work." The speakers were Messrs. Dilks-Page, Malcolm, Turnbull, Anderson, Nash, Hood, and Amore, the subjects undertaken ranging from the leader on "Bacteriology" to the letter on "Our Professional Status." Messrs. Lindsay and Monro replied to the various speakers, and altogether the meeting must be considered one of the most interesting ever held by the Society.

ODONTO-CHIRURGICAL SOCIETY.—The second ordinary meeting of the Odonto-Chirurgical Society (Session 1892-93) was held in the rooms, 5, Lauriston Lane, Edinburgh, on Thursday, December 8th, at 7.30 p.m., Mr. G. W. Watson, L.D.S., President, occupying the chair. Mr. Lawson Storrow Shennan, L.D.S. Edin., D.D.S. Univ. of Penn., was balloted for and elected a member of the Society. A paper on "The Relation of Nerves to Odontoblast Cells, and on the Growth of Dentine," was read by W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., the remarks of the author being illustrated by microscopical specimens and diagrams. A casual communication was reported from Mr. P. E. Fox, South Shields, on a case of fracture of the lower jaw, treated with an interdental splint.

MELBOURNE DENTAL HOSPITAL.—The Second Annual Report of the Melbourne Dental Hospital shows that during the year 1,111 patients have been admitted and 1839 operations performed, and of these 105 were "cocaine administrations" and 4 "Drosera injections." In connection with these administrations and injections it would be interesting to have a tabulated statement of the results, both as regards local pain and also as to constitutional disturbance. It is interesting also to note that—"This Dental Hospital is recognised by the Dental Board of Victoria as a hospital for the carrying out of the dental course of education now in vogue" in that colony. The support at present extended to the charity is, we regret to see, very small;

in the first year £223 2s. 6d. was subscribed, while in the second year only £75 4s. 8d. With such a condition of finances it is manifestly impossible for a charity to be conducted. In order somewhat to overcome this element of trouble, a registration fee of 1s. from the patients has been instituted, but we are glad to see that even that is dispensed with "when the patient states that he is unable to afford this small amount." We wish the hospital and school every success, and venture to think an urgent appeal to the Victorian public would provide an annual income sufficient to enable them to dispense with any entrance fee for patients.

ROYAL COLLEGE OF SURGEONS IN IRELAND. DENTAL EXAMINATION.—The following gentlemen having passed the necessary examination, have been admitted Licentiates in Dental Surgery of the College :—Mr. Ernest Catt (Scarborough) and Mr. Louis Benjamin Eskell (Bath).

WE are gratified to learn that our quondam editor, Dr. Joseph Walker, has in great measure recovered from the serious affection of his eyes from which he has long been suffering. He has however been reluctantly compelled to sever his connection with Marlborough School after twenty-nine years of work. We understand that Mr. Baker has been invited to succeed to the appointment.

IN consequence of the pressure upon our space this month, we regret that we are compelled to hold over several matters of interest until our next issue.

WE regret to have omitted to mention in our last issue that Mr. L. Burgoyne Pillin has been appointed Consulting Dental Surgeon to the Brixton Orphanage on his retirement from the post of Dental Surgeon—an office which he has held since the foundation of the institution.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Our Professional Status.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I believe the views expressed in the correspondence on the above subject are shared by every true member of our profession. I am glad the ball has been set rolling, and I trust the result will be what is so sorely needed—a new Act of Parliament which will suppress all unregistered men, and make advertising illegal for all who are registered.

The only barrier in the way of the elevation of our profession in the eyes of the public is its present condition ; truly it was better thirty years ago.

We should be doing no wrong in suppressing all the unregistered men, as they have no vested rights to consider, since they were not engaged in dentistry at the time of the passing of our present Act. They have no rights ; they are robbing the profession of their rights, and have, by sharp practice, fraudulently entered into competition with those who are legally entitled to practise.

To raise ourselves in position and to save ourselves from those whose means of attracting business is far more outrageous than before our present Act was passed, let us unite together to promote another Bill which will effectually guard our interests and stamp out quackery.

I may say in conclusion that in my own town three unregistered men have commenced within the last two years. They are apparently doing well (as the popular demand seems to be for cheapness and not excellence now-a-days), and my own returns have lowered alarmingly from their unjust advertisements.

I remain, yours truly,

HOPEFUL.

The Future Training for Prosthetic Dental Work.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the interesting paper dealing with the training of both dental pupils and apprentices in your last issue, Mr. Storey kindly referred to the projected School of Dental Technology in London. Some thirty influential members of the Association have

already joined the Provisional Committee, guaranteeing the preliminary expenses (limited to a maximum of £5 each) of initiating the scheme. A proof prospectus, with inquiry form, together with a syllabus, will be sent to any member desirous of examining the scheme with a view to joining this Committee on application to,

Yours faithfully,

GEO. CUNNINGHAM.

*2, King's Parade, Cambridge,
December 7th, 1892.*

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the training for dental work, Mr. Storey recommends the teaching of drawing; if he had said drawing with both right and left hands, his suggestion would have been valuable. There is nothing more useful than a thorough training of the left hand, and no easier or more certain method of training than the use of a drawing pencil. Half-an-hour daily for a month will make a marked difference in the command over the left hand, and will greatly simplify the work of any operator.

THOS. FLETCHER.

APPOINTMENTS.

W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S., Second Dental Surgeon Westminster Hospital.

T. H. CLARENCE, L.D.S., Demonstrator to the Dental Hospital of London.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

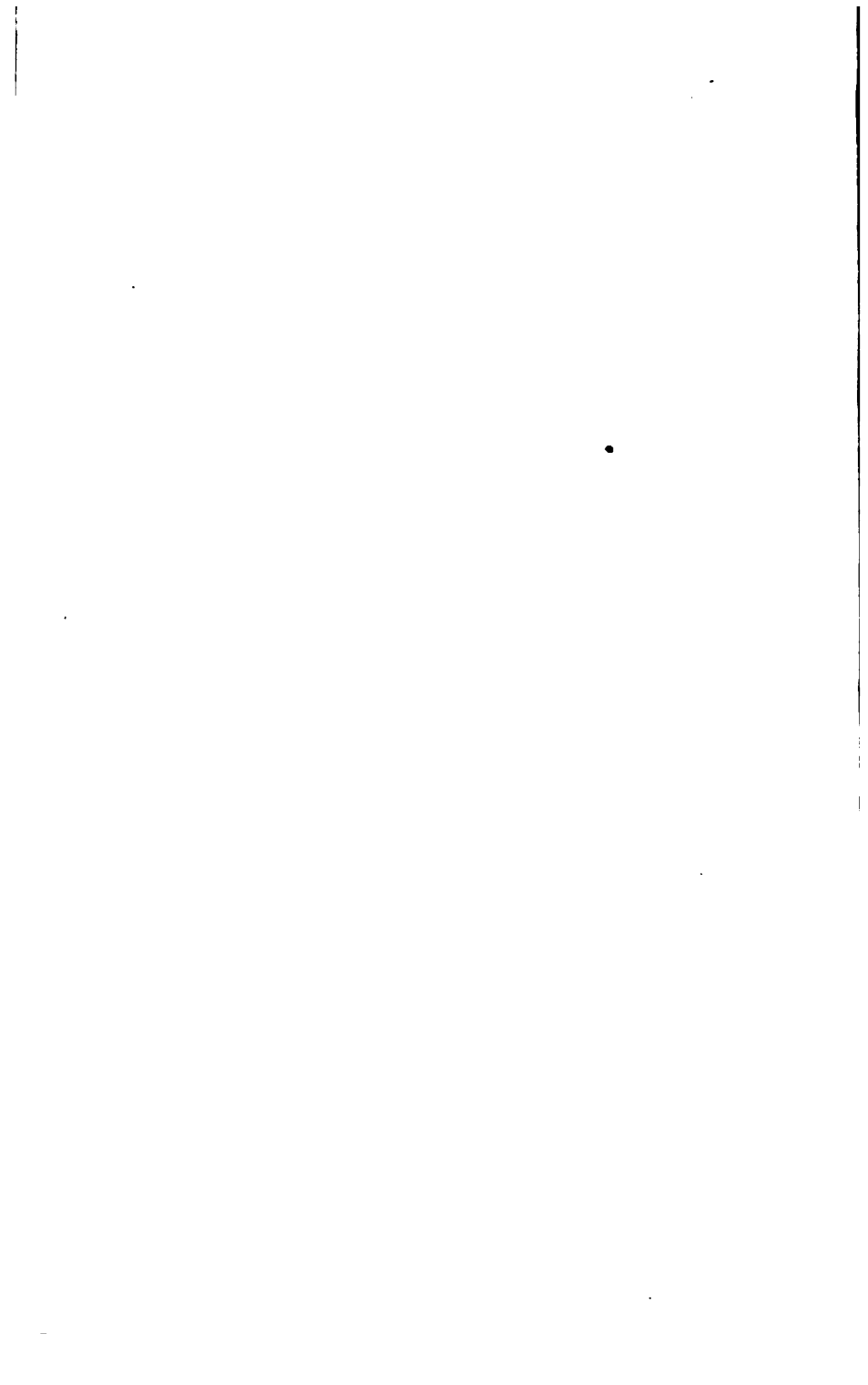
P.O. Orders must be accompanied by Letters of Advice.

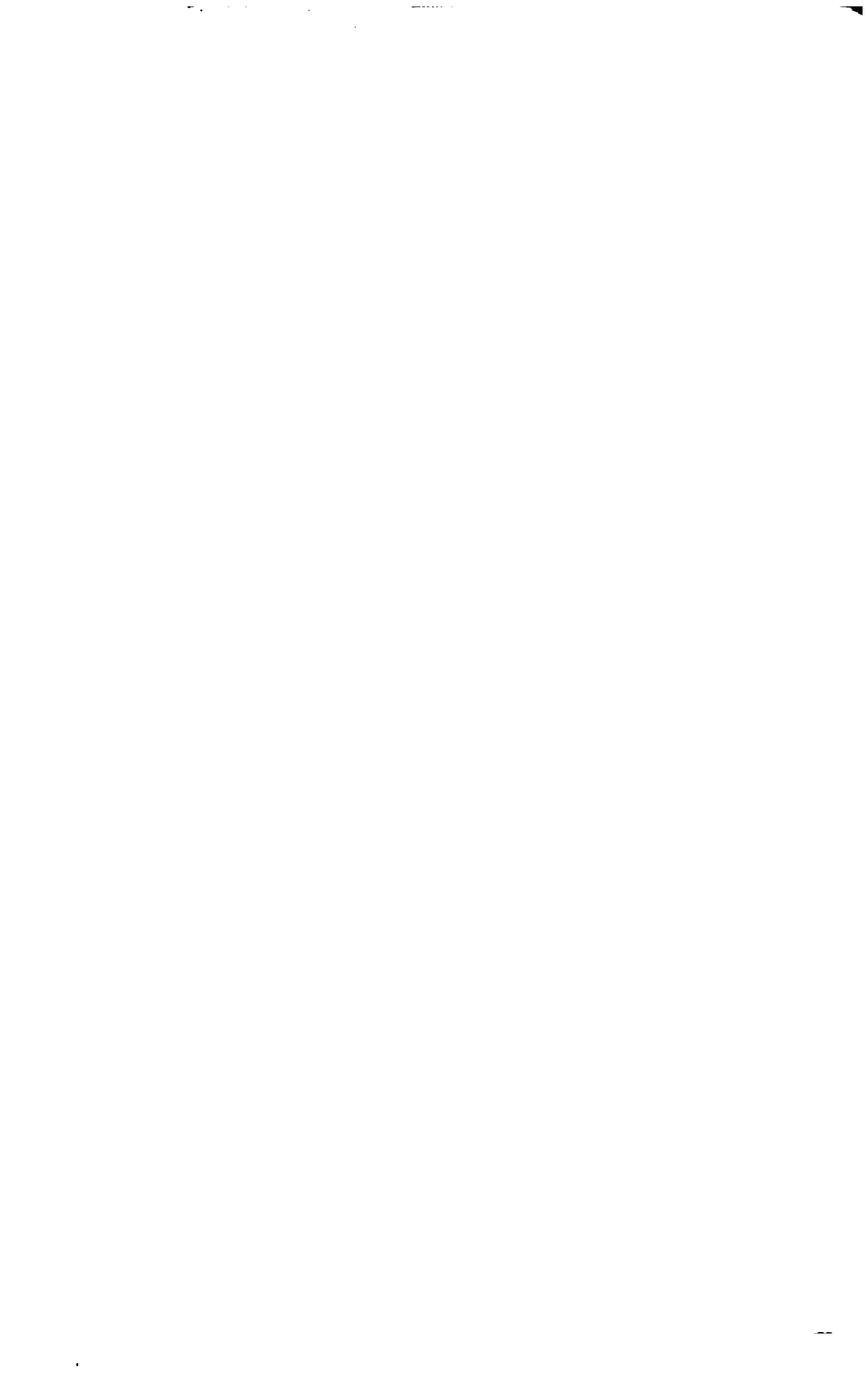
Communications intended for the Editor should be addressed to him at 11, Queen Anne Street, Cavendish Square, W.

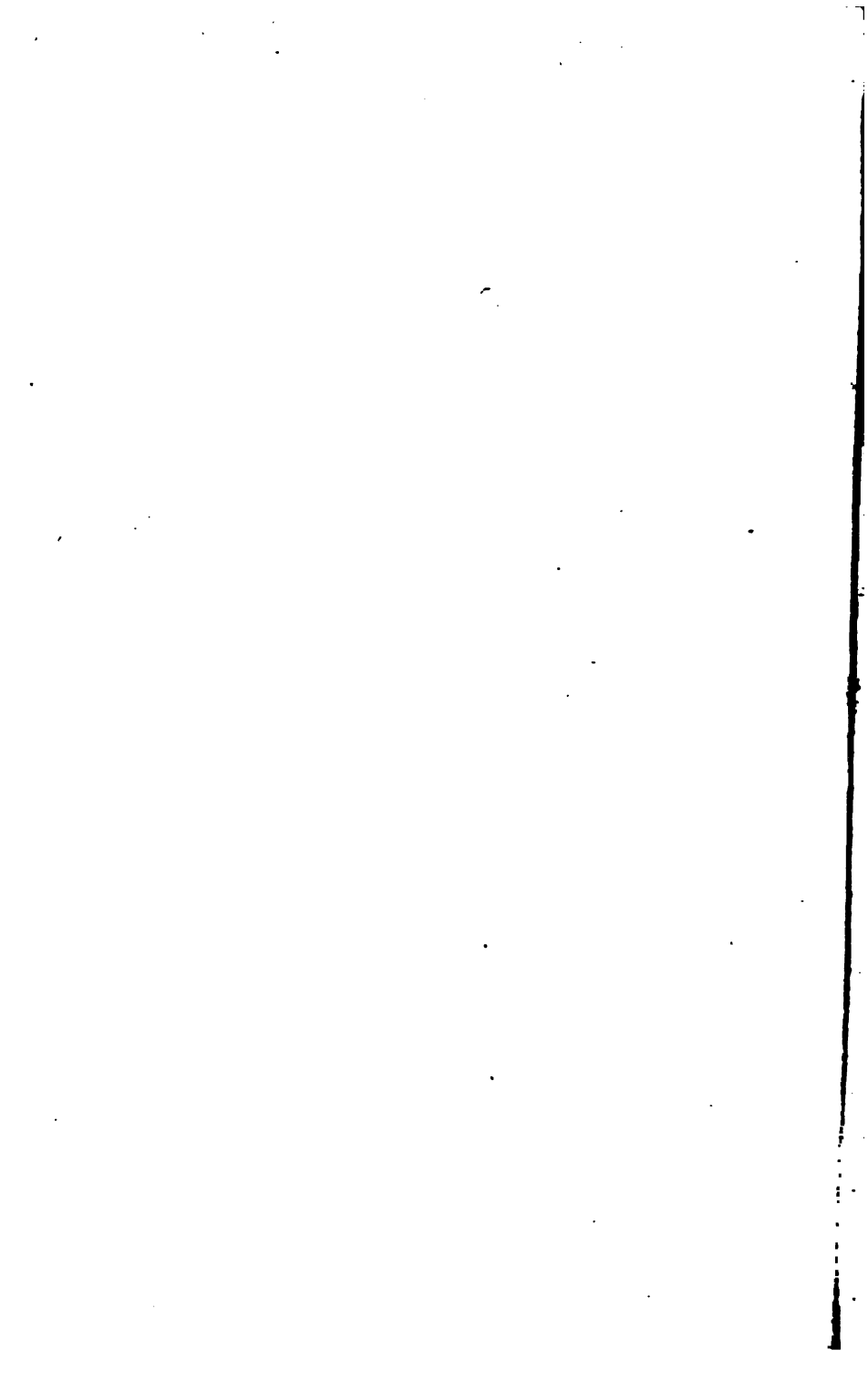
Subscriptions to the Treasurer, 40, Leicester Square.

All Contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.









1 GAL 250

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